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Building Capacity in the Public Utility Sectors of Basra, Iraq

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Abstract

During the summer of 2007 two members of the faculty of the Department of Systems Engineering at the United States Military Academy at West Point deployed to Basra, Iraq in order to assist in provincial reconstruction efforts. Specifically, the mission was to assist in building the capacity of the public sector utility leadership in project prioritization, project planning and project management in order to enhance infrastructure reconstruction efforts. The infrastructure reconstruction effort faces challenges in several domains including a degraded state of physical infrastructure components. Cultural, political, and economic factors, along with the challenging military security situation, further impact infrastructure reconstruction efforts. We present a report of our efforts and a methodology we developed to describe the nature of capacity building in these circumstances. This methodology likely can be applied in similar situations in other regions of the world.

Executive Summary

During the summer of 2007 two members of the faculty of the Department of Systems Engineering at the United States Military Academy at West Point deployed to Basra, Iraq in order to assist in provincial reconstruction efforts. Specifically, the mission was to assist in building the capacity of the public sector utility leadership in project prioritization, project planning and project management in order to enhance infrastructure reconstruction efforts. The infrastructure reconstruction effort faces challenges in several domains including a degraded state of physical infrastructure components. Cultural, political, and economic factors, along with the challenging military security situation, further impact infrastructure reconstruction efforts. We present a report of our efforts and a methodology we developed to describe the nature of capacity building in these circumstances. This methodology likely can be applied in similar situations in other regions of the world.

This report provides detailed descriptions of the effort as it evolved along several lines of influence.

1. We provide a description of our effort at building capacity through engagement with personnel from the technical directorates of the Basra utility sectors. This engagement took the form of a training course in project planning and management developed in Iraq and delivered to approximately 16 members of the technical directorates for water, power, and sewers & municipalities. The effort included approximately 200 student hours of instruction.

2. We provide a paradigm developed to describe the nature of building organizational capability in public sector utilities in tiers that take the organization from a baseline functional entity, through to being a self sustaining service provider and to eventually becoming a learning organization.

3. We describe the particular challenges and opportunities presented by building information technology capacity in a situation characterized by primitive infrastructure and a general lack of information technology and related skills.

We pay particular attention to using information technology capacity development as a means to build capacity throughout the organization.

4. We develop an approach to institutional capacity building and report the results of efforts to engage regional (peer Arab nation) partners with the existing faculty and programs at Basrah University. The goal of this effort is to create the conditions for long term growth in knowledge, skills, and high level competency of public servants through the university.

Coalition forces and the international community have invested a great deal of money and time into rebuilding the physical infrastructure of Iraq. These efforts have been significant and fruitful for the people of Iraq, however we believe that several obstacles will continue to hamper the growth of the utility sectors in Basra, and likely other parts of Iraq, into functional organizations that are not dependent on international sources for resources and expertise. The utility sector workforce lacks formal education, which will limit their abilities to manage their organizations and operate and maintain their infrastructure. For example the Basra Water Department told us that only 6% of their current workforce possessed a Bachelors or higher degree while 43% had no formal education at all. Another obstacle we observed was that there exists no real enforcement or compliance mechanisms in place to regulate the behavior of utility sector managers or consumers of utility services. Based on interviews with the sector technical directors and their staffs there appeared to be little influence or oversight from the national level Ministry of Municipalities and Public Works on the management or operations of the ministries governing utility services in Basra. Further, payment for energy, water or other utility services by consumers is not being enforced so consumer demand is not being managed by any sense of a marginal cost for the service. Another obstacle that we observed was an apparent unhealthy level of influence on the utility sector technical directors by the elected Provincial Council members. In our dealings with the technical directors we observed them taking extensive guidance from the Provincial Council members rather than the Governor's office so the separation of traditional legislative and executive responsibilities under our model of government is not clear in Basra. However, on a positive note we observed a new degree of cooperation among the technical direc-

tors, Provincial Council members and the Governor's office representatives during the Public Sector and Project Management Workshop held in Dubai in September 2007.

We provide the following specific recommendations, observations, and lessons learned that will assist organizations engaged in carrying out this effort. We assert that the effort to build capacity for public servants and the provision of public sector services is a critical component of coalition efforts in Iraq. We believe that investment in developing the organizational capacity of the utility sectors in Basra and likely in other provinces will provide a high marginal return in terms of organizational performance. This investment should include creating teams with technical engineering and management skills that can assist the capacity development of the utility sector organizations through regular engagement. In Chapter 5 we make the overall recommendation that IT is an area in which small amounts of funding coupled with aggressive engagement and mentoring can have a significant impact on organizational effectiveness. We recommend the PRT work to build a capacity within Basrah University that can fulfill the continuing education and developmental needs of their public sector servants. Finally, the Basra PRT should develop and conduct a regular industry forum of the utility sector organizations using the organizational management paradigm described in Chapter 4 of this report as a focus for discussion. We believe that these recommendations are broadly applicable to similar situations in other parts of the world.

About the Authors

Colonel Timothy E. Trainor, Ph.D., is the Professor and Head of the Department of Systems Engineering at the United States Military Academy at West Point. Tim graduated with a Bachelor of Science from USMA in 1983 and entered the Engineer Branch of the US Army. As an engineer officer, Tim has served in operational assignments around the world to include Germany, Honduras, Fort Bragg, North Carolina, Fort Riley, Kansas and Sarajevo, Bosnia. Tim has an MBA from the Fuqua School of Business at Duke and a Ph.D. in Industrial Engineering from North Carolina State University. Tim teaches courses in engineering management, systems engineering and decision analysis. Related to this work, Tim helped develop the Installation Status Report that provides the US Army a standardized means to assess infrastructure and environmental conditions on installations to support resource allocation decisions. Tim also applied decision analysis methods in completing an organizational analysis of the Army's Installation Management Agency. COL Trainor is married to COL Donna Brazil (USMA Class of 1983) who is an Academy Professor in the Department of Behavioral Sciences at USMA. They have a daughter Cory (16) and sons Danny (15) and Zach (12) who enjoy almost all sports.

Lieutenant Colonel Dale Henderson, Ph.D., is an Assistant Professor of Systems Engineering at the United States Military Academy at West Point. He holds a B.S. in Engineering Physics from West Point, an M.S. in Operations Research from the Naval Postgraduate School, and a Ph.D. in Systems and Industrial Engineering from The University of Arizona. LTC Henderson is a United States Army aviator and military operations research analyst. He has served in operational and institutional assignments around the world. LTC Henderson has a broad range of academic and personal interests in fields that use the creative application of quantitative analysis and systems thinking to solve challenging problems. LTC Henderson and his wife, Adrianna, have one daughter, Katherine who is 15.

Acknowledgements

COL Trainor and LTC Henderson would like to thank many people and organizations for their support in this work. LTC Kenny McDonald, the Deputy Commander of the Gulf Region South (GRS) District of USACE, was the original and primary sponsor of this effort who requested our support. He continues to bravely serve the GRS in Basra, Iraq and the people of Iraq trying to make his part of the world a better place having extended beyond his normal one-year tour of duty. He provided the original vision and continuing support for our work, and is an inspiration to us all. We would also like to specifically acknowledge Major Charles Milroy of Her Majesty's Territorial Army (UK Reserve Forces) who provided invaluable support and guidance to our work as the Infrastructure Leader of the Basra Provincial Reconstruction Team (PRT). This affable Scotsman also kept things on an even keel during stressful times with his calm and wit (which was difficult to translate at times!). Other PRT members, notably Jonathon Moss and Andrew Doust, provided invaluable support and insights to enable our work. LTC Richard Brown, previously of the PRT, provided much of the original insight into the efforts to build capacity in the utility sectors of Basra. Tom Chamberland and LTC Rich Painter of the PRT also provided critical support to our efforts. At West Point we would like to acknowledge the diligent efforts of Sergeant First Class Brandon Young, Operations NCO for the G3, who worked the difficult administrative issues in getting our unusual deployment approved.

We would also like to acknowledge the people of Basra who are engaged in a struggle against power-hungry gangs of militia that do not want stability to emerge in the region because that will threaten their temporal bases of support. A few key local leaders we were privileged to work with stood out among the others, bravely working to restore essential utility services to the people despite the daily threats from militia. These leaders are the future of a stable Iraq:

- Gharli N. Mutar Al-Huaeini, Head of the Provincial Reconstruction Development Committee of Basra

- Engineer Ghazi Smari, Chairman of the Basra Power Committee of Basra Council
- Abdul Ul Zhari Samer Abbas, the Provincial Council Focal Point for the Municipalities and Sewerage Sectors
- Dr. Hamid Nasser Al-Dhalemi, the Provincial Council Focal Point for the Basra Water Department
- Engineer Abdul Al Munam, the Director General of the Basra Water Department
- Engineer Esmale Gaze, the Director General of the Basra Municipalities Department
- Engineer Sameer Abdul Jabbar Ali, the Director General of the Basra Sewerage Department
- Dr. Abdullan al Harji, Dubai Electrical and Water Administration
- Dr. Anis A. Mohamad Ali, Professor of Civil Engineering, Basrah University

We worked with several other brave people in Basra that we hope and pray will prevail in their heroic efforts to restore reliable essential utility services to the people they serve.

Acronyms

BG	Basra Governate
BMD	Basra Municipalities Directorate
BPD	Basra Power Directorate
BPWI	Basra Public Works Initiative
BSD	Basra Sewerage Directorate
BWD	Basra Water Directorate
CF	Coalition Forces
COSIT	Central Organization for Statistics and Information Technology
DG	Director General
DIFID	UK Department for International Development
DSG	Dubai School of Government
ESF	Economic Support Fund
FAFO	(Norwegian) International Institute for Applied Studies
GIS	Geospatial Information Systems
GRD	Gulf Region Division
GRS	Gulf Region South
HR	Human Resources
IT	Information Technology
MOP	Maintenance Operating Procedure
MND-S	Multinational Division - South
PC	Provincial Council
PRDC	Provincial Reconstruction Development Committee
PRT	Provincial Reconstruction Team
OOP	Organizational Operating Procedure
SDP	Systems Decision Process
SOP	Standing (Standard) Operating Procedure
UK	United Kingdom
UNDP	United Nations Development Program
UNEP	United Nations Environment Programme
USACE	United States Army Corps of Engineers
USAID	United States Agency for International Development
USMA	United States Military Academy

CHAPTER 1
Background of this Study

1.1 United States Military Academy Support to Basra Reconstruction

In October of 2006 several elements of the coalition forces operating in southern Iraq began an initiative aimed at enhancing the reconstruction efforts in the region by working with the government officials responsible for providing these services. The agencies included the J9 element of the multinational force responsible for the south of Iraq (MND-S), the Provincial Reconstruction Team (PRT), and the Gulf Region South (GRS) element of the Gulf Region Division (GRD) of the United States Army Corps of Engineers (USACE), which was managing several construction projects in the city and its surroundings. The name of this effort was the Basra Public Works Initiative (BWPI). The leadership of the PRT and the GRS element at Basra asked the Department of Systems Engineering at the United States Military Academy to assist with certain specific assessment and training tasks. In February of 2007, COL Tim Trainor, Professor and Head of the Department of Systems Engineering, attended a strategy development conference in Jordan. In June of 2007 COL Trainor and LTC Dale Henderson, Assistant Professor of Systems Engineering, deployed to Basra Province and conducted an 8 week study and engagement effort with the political and technical leadership and members of the technical staffs of certain public utilities from the province. These utilities included:

- Electrical Power
- Water
- Municipalities and Sewerage

The effort described in this report culminated with an out of country training and development conference in Dubai in September of 2007. Each of the utilities was

represented at this conference which also included members of the faculty of Basrah[1] University.

1.2 Organization of this Document

This chapter provides a short overview of the region, the province and the city, along with references to the significant body of published and unpublished assessment literature covering the subject. The rest of this document is organized into chapters which provide detailed descriptions of our assessment of the problems, our methodology, and our specific recommendations. Chapter 2 describes the problems we addressed with this effort and outlines a framework we developed for describing capacity building as it applies specifically to these organizations. Chapter 3 describes the training program we developed and executed during the course of our assignment to Basra. Chapter 4 discusses organizational capacity building and Chapter 5 covers information technology (IT) assessment, considerations, and recommendations. Chapter 6 describes the initiative to create and foster a mentoring relationship between Basrah University and mature regional peer organizations. Recommendations are included in each of the chapters.

1.3 Basra Province and City Overview

Basra province is a southern province on Iraq, bordering Kuwait to the south and Iran to the east. The province borders Maysan and Dhiqar provinces to the north and Muthanna province to the west (Figure 1.1[2])

[1]Throughout this report we will use "Basra" to name both the province and the city, and the traditional spelling "Basrah" for the university.

[2]This is a United Nations Cartographic Section product `http://www.un.org/Depts/Cartographic/english/htmain.htm`

Figure 1.1: Iraq vicinity and provinces.

It contains the second largest city in Iraq, Basra, and the only seaport in Iraq, Umm Qasr. It also holds a significant proportion of the known oil reserves in Iraq.

The provincial capital and largest city in the province is Basra. The references cited in this section provide extensive detailed descriptions of the social, political, geographical, historical, cultural and economic characteristics of the province and of Basra City. The references are fairly consistent with one another, and together provide both a useful overview and nearly complete assessment of the public sector infrastructure. The assessment of the physical infrastructure, with emphasis on that of Basra city began almost immediately with the capture of the city by coalition forces in 2003. Assessment has continued throughout the reconstruction effort. We highlight some key observations in this area that have a profound influence on the problems addressed in this study. For a readily accessible, concise, and well written overview of the physical geography and history of the area, the wiki [1] is quite useful.

1.3.1 Basra City

Basra City is the second largest city in Iraq. Estimates of its population range from around 750 thousand to 2.4 million. A January 2005 Water Sector Investment Planning Document prepared by Mott MacDonald[3] estimates the total population of the province at 1.7 million and the population of the urban center of Basra city of 736,902. This report cites a 2003 Ministry of Planning document for these figures [2]. A comprehensive study by Tokyo Engineering Consultants Co., Ltd. [5] references a joint United Nations Development Program (UNDP) Iraqi Central Organization for Statistics and Information Technology (COSIT) study which provides similar estimates: a total population in the Governate of 1.76 million as of 2003. Other less formal reports estimate the population as considerably higher. A Basrah City Study, prepared in 2004 estimates the population of the city at 2.2-2.3 million [6]. The variation in estimates of the population of the city stem from the decades of political and military turmoil that proceeded the liberation of Iraq in 2003. At any rate, the city is a key population center, and is the political, historical, and cultural center of Southern Iraq. Assessments of its physical infrastructure dating from the invasion describe poor condition and inadequate capacity [7].

[3]Mott MacDonald is a private company that has provided extensive contract support to coalition reconstruction efforts in Southern Iraq. `http://www.mottmac.com/`.

1.3.2 Basra Province

The population of Basra Province is comprised primarily of Shia Arabs, although there is a long history of acceptance of sectarian and ethnic minority communities and of contact with the outside world through the university and the port. A small population of "Marsh Arabs" inhabited the wetlands in the province until the wetlands were drained in a punitive policy by Saddam Hussein's regime. Significant battles in the Iran-Iraq war were fought in and near Basrah province, and the city has been key terrain in each of the United States led invasions of Iraq. The Province was placed under the authority of the United Kingdon (UK) during the early occupation by coalition forces and remains under UK military control as of the summer of 2007.

1.3.3 Public Sector Utilities

Public sector utilities in Basra have operated at a degraded level for a generation. While the province and the city were once remarkably advanced compared with regional benchmarks, the Baath regime, the Iran-Iraq war, the first gulf war and subsequent punishment of the province by the Hussein regime, and the invasion and recent security challenges destroyed much of the physical infrastructure layer. Perhaps more importantly these man-made disasters destroyed a generation of trained bureaucrats, managers, engineers, and political leaders who are essential to operating a modern infrastructure system in a way that provides services at a meaningful level, operates the system in a sustainable way, and has the ability to assess, plan, and grow capacity to meet future needs. Of gravest long term concern, the forward thinking, technically competent community of scholars and educators, which was once represented in the university at Basrah has been nearly completely extinguished by nationalist and sectarian extremists. These elements have driven away, murdered, and intimidated the most literate and technically competent members of the community. In addition, a culture that was at one time [4] industrious and entrepreneurial was degraded by a generation of extreme state-ist command socialist government control which eliminated fundamental economic practice with

[4]Reference Conversations with Engr. Joseph Saeed, a native of Basra currently employed by the USACE

respect to all areas of public service. This aspect of a functioning modern culture has been more recently under assault by an aggressive insurgency with fundamentalist Islamic roots. As a consequence, foundational economic incentives and controls on supply and demand do not exist in Basra in any meaningful way [8]. Rational labor costs, fees for public services, and functional tax systems are all beyond the current political system's capacity and in the void there is widespread corruption, extreme labor cost inefficiency, and tribal and sectarian corruption of public policy and decision making.

The way forward is to build sound, transparent government institutions, but at the same time these government institutions must be served by capable bureaucrats, engineers, planners, managers, and supervisors. The development of these mid-level leaders is the focus of the Basra Public Works Initiative described in the next section.

1.4 Basra Public Works Initiative

The Basra Public Works Initiative (BWPI) was organized with the specific goal of building the capacity of the public sector utilities to provide essential services to the people of Basra province. The BWPI model for capacity building is shown in Figure 1.2.

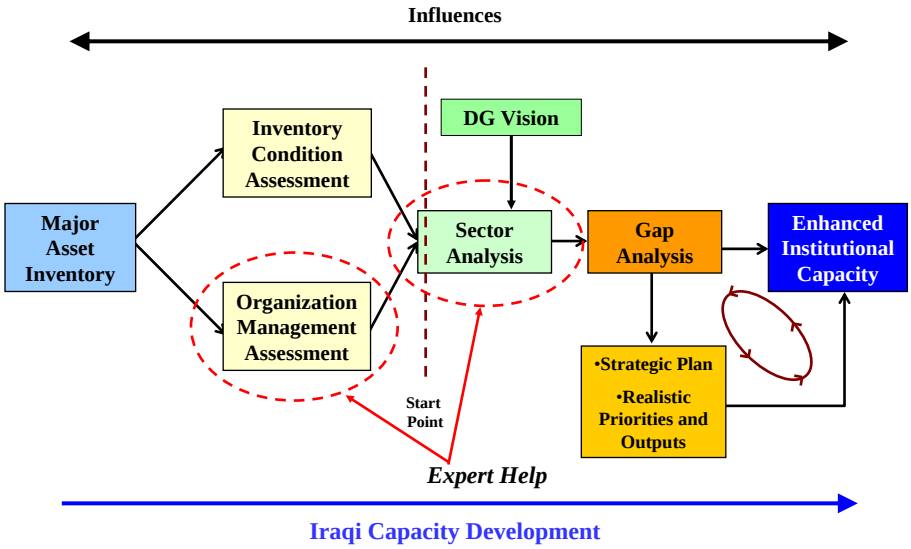


Figure 1.2: The Basra Public Works Initiative.

The BWPI vision was to use this framework for capacity building to enable an assessment, planning, and execution cycle that built organizational capacity as it executed project development, planning, construction, and operations. The following sections describe the environmental components impacting on dysfunction in public sector services.

1.5 Components of Dysfunction in Public Services

We lay out the challenges facing reconstruction of public sector utilities in the environmental categories described in [9] here, and describe them in brief detail in separate subsections.

- Cultural

- Political
- Environmental
- Historical
- Economic
- Technological
- Legal
- Social
- Moral/Ethical
- Emotional
- Organizational

1.5.1 Cultural

Cultural considerations impact all aspects of military and reconstruction operations in southern Iraq. These considerations may divided into the long standing cultural realities of ethnicity and religion, and the more modern considerations stemming from a culture that has matured into the modern world under authoritarian rule and socialist economic policy. While Arab nationalism and sectarian divides exist in Basra, they are mitigated by the cultural tradition of being a cosmopolitan center of trade, education, and engagement with the broader world. Most Iraqis believe in tribal loyalty, that strong authoritarian central leadership is the most effective and necessary approach to governance.

1.5.2 Political

The political challenge is derived from both long term cultural influence and the recent experience with authoritarian rule. While Iraqis have embraced democracy, they rely heavily on Sheiks to make political decisions. Sheiks dominate the

sub committees of the elected government and influence many day to day management and planning decisions that would be made by bureaucrats and technicians in a functioning modern infrastructure management. Politicians control project prioritization, and the award of project contracts[5]. They also control the human resources system including the personnel structure of the organization. This control is not aimed at developing an efficient labor force, but is a source of power and income.

1.5.3 Environmental

Environmental challenges come in two categories. First, the physical geography and climate of the region is extreme. This presents unique engineering challenges as machinery, electronics and any equipment related to the operation and maintenance of infrastructure is under constant assault from the elements. The extreme heat and ready availability of compact air conditioning units to the public places unmanageable demand on the electrical power grid. The harsh climate makes the enforcement of a standard work day for laborers challenging. The high water table and very flat terrain present challenges to sewer design.

Secondly, the degradation of the physical environment by the oil sector, by decades of armed conflict, and by the introduction of western consumer packaging (water bottles and other garbage) pose far reaching challenges for development, and are known to have a negative impact on public health beyond the concerns of inadequate sewerage and poor water quality [6]. The environmental challenges are well documented in the United Nations Environmental Programme report [20].

1.5.4 Historical

The history of the region actually has more positive implications for the problem set than negative ones. Basra has been a cosmopolitan, outward looking, and open region for centuries. It has been a center of trade and of learning. It has an established university and vital commercial ties to the outside world through its oil industry. Although dominantly Shia, and tied to Iran along sectarian lines, the

[5]The term of art for the award of a contract in Iraq is "tender"

[6]Basra Children's Hospital is a major construction effort of USACE and other international donors. It is being built to treat a very high incidence of cancer among children

population has historically tolerated sectarian minorities and taken a less radical view of religious practice than is the case in Iran.

1.5.5 Economic

The economy of the region is dominated by its oil wealth and its fundamentally socialist and centralized system. Oil reserves are a source of economic power for the nation. Oil revenue flows to the central government in Baghdad instead of directly to the province, and this is a source of conflict and a motivation for radical elements. The generation of citizens who lived under socialist Baathist rule have a distorted understanding of fundamental economic controls. Specifically, public sector utilities are viewed as a "free" commodity provided by the central government. Consumers are not prepared to pay for services. Additionally, the central government provides food to each household as a legacy of the oil for food program. This means that the average Iraqi consumer sees disposable income, however small it might be, as a means to purchase consumer goods like air conditioners, television sets (with satellite dishes), and refrigerators. They do not have an economic incentive to conserve the electricity consumed by these devices. The electrical power sector leadership frequently cites enormous needs for power generation (on the order of thousands of megawatts electric) which reflect a rapidly growing demand for electricity unchecked by fundamental economic controls [7].

1.5.6 Technological

Besides the technological challenges presented by the terrain and climate, the region suffers from two major technological challenges. The first is that the infrastructure, where it exists, is a mixture of older facilities and newly constructed and renovated facilities. The equipment in these facilities is a mix of Soviet, European, and American designs. Japanese equipment will likely enter this mix in the coming years. The second is the lack of a useful communication infrastructure. Communications in Iraq are carried out by cellular phone. Television and internet connections are provided through satellite services. The copper phone network no longer exists,

[7] Conversations with Engr. Ghazi, of the Basra Council

and no high bandwidth fiber, cable or similar telecommunications infrastructure exists. Because of the economic challenges described above and the security situation it is extremely unlikely that the market will provide immediate solutions or growth in this area.

1.5.7 Legal

Legal challenges stem from two sources. The first is the lack of fundamental rule of law throughout the country for a generation. Rule of law is a major component of the CF reconstruction effort outside the scope of this work. Legal implications for reconstruction arise from US and CF laws regarding contracts and the dispersement of funds. These laws, policies and processes can limit the flexibility of organizations to implement the most effective reconstruction strategy. The Iraqi leadership is often baffled by these restrictions.

1.5.8 Social

A major social implication for reconstruction stems first from the cultural and recent historical attitude toward corruption. Activities that we would view as clearly corrupt in the west are considered common business practice or negotiating technique in Iraq. Secondly, the Iraqi social conception of work week, work day, or fixed times at which specific events must occur or specific tasks must be completed is vastly different than in the west. This social paradigm toward certainty in planning, and handshake agreements creates translation challenges in teaching and difficulties in making agreements about priorities. Interestingly, we found the leaders and technical staff's social outlook to be one of generosity, friendliness toward outsiders, humor, and collegiality.

1.5.9 Moral/Ethical

The primary moral ethical consideration in reconstruction stems from the CF's moral obligation to work with Iraq to make it a better place. The invasion was motivated by moral consideration as much as by security considerations, and the reconstruction effort is widely seen as the most convincing argument that the coalition is operating from a position of moral superiority to the insurgency.

1.5.10 Emotional

There are emotional considerations in intervening in the planning, operations, and management of the public sector utilities. The team attempting to influence events through engagement must remain dispassionate and disinterested in the face of conflicts among the sector leadership. Often negotiations and discussions with Iraqi leaders and technical experts are characterized by a more dramatic and passionate exchange of ideas than is customary in the west.

1.5.11 Organizational

The greatest challenges to reconstruction, outside of security issues, are organizational. This area is given more detailed treatment in Chapter 4.

1.6 Initial Assessment of Project Planning and Management Competency

The first assessment of management competency we conducted as part of this study took place at a meeting at the Dubai strategy conference of 15 - 21 June 2007. We held a formal meeting with the chairman of the PRDC and the provincial council focal points for water, electric, and sewer and municipalities. These four men are elected representatives of the people of Basra province and serve as subject area experts on the council in their respective area of public sector services. They also have a significant degree of political influence on the appointed technical directors far beyond that which would be considered commonplace in the developed world. We used the meeting primarily to obtain their permission to work directly with the technical staffs of the directorates over which they exert this high degree of political control. Once in Iraq, we began a series of meetings to build this trust relationship at levels below the PC focal points, and to form an initial assessment of the level of competency in basic project planning, management, organization, and maintenance.

At these meetings we discovered that the current view of project planning held by the technical directors was that project planning and project management were properly the role of those contractors who were involved in the construction of a particular component of infrastructure. None of the organizations practice

project planning, although each has a plans department. The directorates have basic organizational structures, and large labor forces. They have information technology departments which house nearly all of their information technology expertise and capability. We decided that a short course on the basic principles of planning, estimating, and scheduling would be an achievable short term step toward building a foundation of interest in the topic, awareness of its usefulness, and trust in teams like ours to engage in this type of capacity development. Chapter 3 of this report describes the training course in detail.

CHAPTER 2
The Methodology We Used

In the Department of Systems Engineering at the United States Military Academy at West Point we teach aspiring young officers to become engineers and better decision makers. The basic engineering thought process we teach is called the Systems Decision Process (SDP) in Figure 2.1 [9].

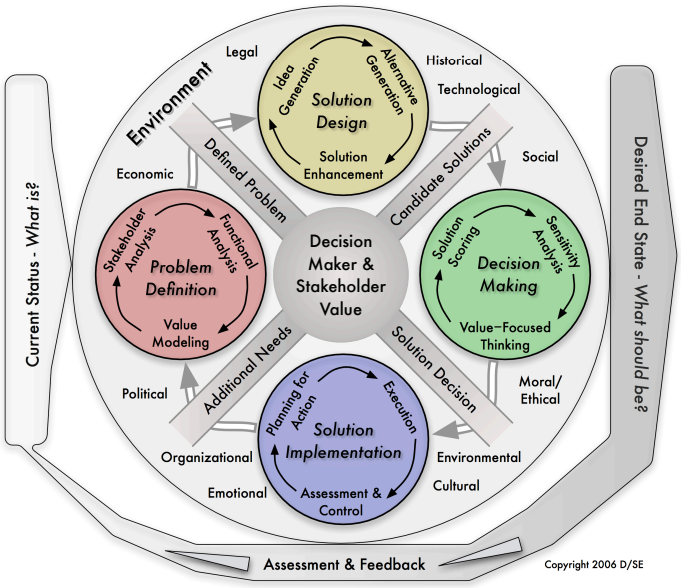


Figure 2.1: The Systems Decision Process.

While Figure 2.1 may appear to be a bit complicated process it is rather simplistic in concept. We focus first on defining the correct problem, the solution of which meets the needs and values of the key stakeholders. Next we generate, design and enhance potential creative solutions to solve this problem. We then develop a means to evaluate and rank these potential solutions using the stakeholder values as the key decision criteria for selecting the recommended solution. Finally we plan for and implement the solution employing sound monitoring and control mechanisms to evaluate performance. Throughout this engineering process we use assessment

and feedback loops to ensure we are meeting the needs of stakeholders and using the latest available information and resources.

We followed this thought process in framing our methodology to develop a solution to the problem of how to help build capacity in the utility sectors in Basra. In terms of Problem Definition, COL Trainor was exposed to the initial issues and stakeholders while attending a workshop run by the Provincial Reconstruction Team (PRT) in February 2007 that was focused on creating a Provincial Development Strategy for Basra. This workshop included Provincial Council members, governmental and utility sector leaders and representatives of the Coalition Forces and key United Nations developmental organizations. We found and read many in-depth and insightful studies and assessments of the Basra utility sectors performed by military engineers and civil affairs specialists, members of the PRT and engineering companies from other countries since 2003. We also interviewed several stakeholders including Director Generals (DGs) of some utility sectors, some Basra Provincial Council Members, members of the PRT, and the Commander and other representatives of the Gulf Region South of the US Army Corps of Engineers (GRS of USACE). We analyzed this information and developed the following objectives for our work so that it would be beneficial to the Basra government and the PRT:

1. Help reduce utility sector dependence on external contractors to perform planning and management tasks that should be performed internally.

2. Develop a capacity for building adequate project plans within the water, electricity, municipalities and sewerage utility sectors depending on their acceptance level and access to the appropriate employees.

3. Improve the information technology capabilities of these sectors.

4. Improve the capabilities of these sectors to define and articulate their budget requirements to the PC and national ministries.

5. Gain acceptance from these sectors of the need to have standard operations procedures and organizational requirements documents.

6. Enhance the capabilities of Basrah University to educate current and future utility sector managers.

In arriving at an action plan to accomplish our objectives we truncated the Solution Design and Decision Making phases of the Systems Decision Process. Our action plan can be summarized in these three initiatives:

- Develop utility sector staff capacity by conducting training in project planning skills with the Municipalities, Sewerage, Electricity and Water Sectors.
- Build organizational capacity by developing a management competencies paradigm and identifying practical information technology methods to improve the organizations.
- Develop and support a capability in Basrah University that will be the leading source for the long-term capacity development of the utility public sector servants for Basra.

The following chapters detail our implementation of these initiatives in concert with the great people of the Basra PRT and the GRS of USACE. In implementing these initiatives we used monitoring and assessment techniques, for example requesting written feedback from utility sector leaders attending our training sessions, to help us adapt and better implement our solution methods. While this problem did not represent a large scale system, following the SDP did help us frame a solution methodology that addressed many components of and issues impacting the problem of how to help build capacity in the utility sectors in Basra.

CHAPTER 3
Training for Utility Sector Leaders

3.1 The Training Course

After making an initial introduction and assessment, we developed and delivered a four lesson course on the fundamentals of project planning to leaders and technicians from each of four public sector utilities: water, power, municipalities, and sewerage. This training has no precedent in Basra province as earlier training efforts delivered by contractors focused on specific information technology products or specific maintenance activities (e.g. leak repair). Training delivered by the PRT to provincial leaders has focused on developing transparent and effective systems of governance and decision making. Our target audience was the technical staff from the D.G. level and below and our objective was to teach a short course in the basic principles of planning a physical layer infrastructure component. We faced several challenges as we went through the course. Each group had different goals, different competencies, and a different leadership climate. We used the engagement model described in Section 3.2 to evaluate, prepare and adaptively teach the course.

3.1.1 Course Objectives

We used the Iraq Economic Support Fund (ESF) funding for 2007 [11] as a motivation for the project planning course. The projects developed over the course of the funding were realistic proposals for the $30M allocated for the province. Our course learning objectives were:

- Understand the importance of purpose and scope in developing a project plan
- Be able to develop a clearly written purpose statement and a comprehensive scope for a project
- Understand the value of scheduling in the project planning process.
- Be able to develop a broad project schedule based on estimates of sub task completion time and effort.

- Understand the Gantt chart and its importance in portraying a project schedule for planning.
- Be able to generate a project task list and Gantt chart using a computer.
- Understand the importance of cost estimating in project planning.
- Understand the concepts of bottom up and top down cost estimating in project planning.
- Understand the value of Information Technology, GIS products, and schematics in communicating the scope, schedule, and cost estimate for a project to decision makers.
- Be able to present a project plan to decision makers.

3.1.2 Teaching methods and facilities

We used the vacant Basra Oil office facility at Camp Blackadder on the Basra International Airport as a classroom, and obtained two computers for use as teaching machines. Since we had no access to commercial project planning software, and since we did not have Arabic versions of Windows we set these computers up as dual language workstations using the KUbuntu [12] operating system. We used OpenOffice [14] as our office suite and TaskJuggler [10] as a simple project management suite. Teaching using TaskJuggler was difficult because of the English vocabulary and syntax of the scripting language that describes a project. On the final lesson for the electric utilities we used a student version of Microsoft Project to build the schedule, and this was a more effective tool. A more detailed discussion of the information technology assessment and training is in Chapter 5.

We scheduled each lesson on the same day of the week and at the same time. Lessons were scheduled to begin at 0930 and end at 1330. In practice we usually began after 1000 due to the hurdles of getting the students on to the airport and then on to Camp Blackadder. We were able to provide approximately 200 student hours in the classroom facility which were divided between lectures, classroom discussion,

and practical exercises. We followed the following general lesson plan for each sector during the four lesson course:

Lesson 1 Introduction to project planning and example: In this lesson we demonstrated the development of a project plan using a motorcycle example from the project management course taught at West Point.

Lesson 2 Purpose and Scope of Work Development.

Lesson 3 Task List Development, Estimating Techniques.

Lesson 4 Project Schedule and Cost Estimate Development.

In each of the lessons there were numerous side discussions and opportunities to reinforce student learning and introduce additional material. The instruction techniques were open and adaptive to capture these opportunities. As an example during the lesson on project phases, there was a long and important discussion among the students in the water directorate on the difference between warranty work and routine maintenance. We incorporated this discussion into lessons for the other sectors. The concept is critical to planning for the life cycle operation of a component of physical infrastructure, but was not well understood initially by the students. We used the interpreters heavily in the early lessons, but found as the relationship developed that there were several competent English speakers among the students. In the case of the electrical lessons we found that the Iraqi GRD electrical staff members were an invaluable resource.

3.2 Notes on Teaching as Engagement

We view the basic act of teaching Iraqi individuals as a critical component of engagement. The following model illustrates the steps in the implementation of a teaching program:

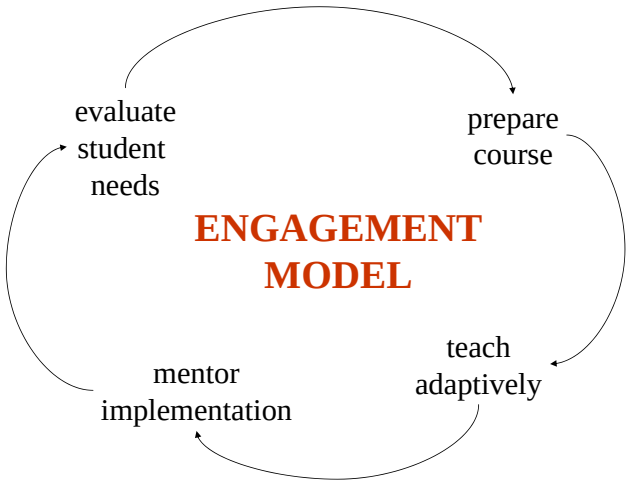


Figure 3.1: Engagement model for teaching.

The process begins with an evaluation of student needs. This is vital for tailoring course objectives and it is essential for building a trust relationship with the students. Evaluation at this level requires avoiding making assumptions about student competency. It also requires careful attention to the dynamics of the student group. Preparing a particular program of study takes time and a realistic view of the pace of training that is achievable. Training will be delivered through interpreters. Some concepts that seem simple will be very challenging for students. Lesson plans need to reflect the reality that the pace will be slow. Teach adaptively. Teach for a particular application so that the implementation of the application becomes a component of the engagement process.

We found that this model of teaching was useful under the unique challenges of teaching a mixed group of practicing professionals in a different language and under a difficult security situation. The need to carefully assess student understanding (almost on a sentence by sentence basis) through an interpreter requires a great deal of patience. Lesson goals should be modest in scope and reflect this challenge.

We also built time into the lessons for tea, cookies, and lunch. This sent an important cross cultural message to the students, and it also gave them a small form of compensation for the time, effort, and personal risk they put into coming to see us. After each lesson we gave the students a homework assignment in the form of take home work toward completing their project proposals. The final presentations were developed outside the classroom after the last lesson.

The following observations are relevant to any effort to engage bureaucrats and technicians:

- Do not assume anything. Without being condescending or insulting the students, the instructor needs to pay careful attention to expressions and cross talk to determine if a particular concept is completely unfamiliar to the students. For example, the concept of making a rough estimate (educated guess) as a valuable tool for preliminary planning was difficult for the students. We introduced very simple quantitative tools for making such estimates. As another example, the notion of a deadline or project milestone as a certain point in time at which a particular task or phase must be completed was certainly comprehensible to the students, but they seemed to feel that declaring such milestones was not realistic. Laying out project milestones is fundamental to scheduling.

- Allow the students to talk among each other. Teaching in this context is less formal than is customary in a typical classroom environment. The side discussions will be in Arabic, and they may be quite lengthy. Allowing them to continue takes patience. Have the interpreter give occasional updates on where these discussions are going, but resist the temptation to interrupt them. The interpreter may take a fairly concise statement of what seems a simple concept and turn it into several minutes of back and forth conversation until the point has been made to the students.

- Don't be afraid to be demonstrative in praising students. If one makes a valid point or valuable contribution, be sure to praise the insight. This seems like a technique more appropriate to teaching young children in the west, but the

effect of such praise on the status of the student who made the observation among his or her peers is important. It is an extremely valuable technique for getting the students to open up and participate.

- The students were very keen to have tangible items that represented the training. The certificates (see Figure 3.2) were valuable, and all of the groups wanted photographs on CD. In retrospect class photographs would have been an easy, cheap reinforcement. We always asked about taking photographs, but they always wanted their pictures taken with us. Don't underestimate the prestige (and risk) that comes with their association.

- Titles like "Engineer" and "Doctor" are very important. A doctorate has a great deal of prestige. The title of "engineer" generally refers to one who has a college degree in engineering, but may also describe one who is an accomplished or respected practitioner.

3.3 Course feedback and certificates

We used course feedback forms for several reasons. First to obtain feedback about the training and to gain insight into the students self reported needs - after they had been exposed to basic project management concepts. Secondly the course feedback form was a mechanism for assessing student learning and for assessing the value added by the engagement effort. Finally course assessment serves as a teaching point on the importance of feedback in organizational improvement.

Department of Systems Engineering
United States Military Academy
Presents
Project Planning Course
Certificate of Achievement
To
Engineer Ahmed A. Mohammed
July 23rd, 2007

Course End Feedback (Feedback at the end of the course)
آراء المتدربين في الدورة الدراسية
Project Planning Course, Jano - July 2007
دورة دراسية عن تنظيم المشاريع
Use this scale to answer the questions:

1	Strongly disagree	أعارض بشدة	1
2	Disagree	أعارض	2
3	Neither agree nor disagree	لا أوافق ولا أعارض	3
4	Agree	أوافق	4
5	Strongly agree	أوافق بشدة	5

This course was useful to help me perform my duties in my work.
هذه الدورة الدراسية كانت مفيدة في مساعدتي على أداء مهام وواجبات عملي.
5 4 3 2 1
O O O O O

It is important for me to continue to receive training like this course.
من المهم بالنسبة لي أن استمر في تلقي التدريب في دورات مثل هذه الدورة.
5 4 3 2 1
O O O O O

It is important for others in my organization to receive training like this course.
من المهم للآخرين في منظمتي أن يتلقوا مثل هذه التدريبات.
5 4 3 2 1
O O O O O

What I enjoyed most about this course:
ما الذي استمتعت به أكثر في هذه الدورة:-

What I enjoyed least about this course:
ما الذي استمتعت به أقل في هذه الدورة:-

What I would change about this course:
ما الذي أود أن يتغير في هذه الدورة:-

Figure 3.2: Graduation certificate and course feedback survey.

We used certificates to mark the end of the course, to provide the students with a concrete expression of the value of training, and to add prestige as a reward for the effort they put forth. Attending training sponsored by MNF-I is dangerous and uncomfortable. The security situation dictated that the course be taught in the secure contingency operating base at Basra International Airport. The security measures in place required the students to come to a fortified gate, be driven to our camp within the COB, and then undergo a security screening (and for example surrender their cell phones) before being admitted to the training.

Figure 3.3: Municipalities and sewerage students.

3.4 Final Presentations

On 31 July 2007 each of the groups made a presentation of their project plans to Mr. Ghali N. Mutar, the head of the Provincial Reconstruction Development Committee of the Provincial Council. This presentation was a vital teaching point for the students.

3.5 Dubai Conference

One impact of this training course is the buy in from the leadership within the utilities for further training. The Dubai conference which occurred during September of 2007 provided an opportunity to build on the knowledge base provided during the summer training. This event is described in detail in Chapter 6.

CHAPTER 4
Building Organizational Capacity

4.1 A Paradigm for Capacity Building

In our initial review of the literature and assessment of the current situation and practice, we decided that the problem was best viewed through a framework. This is not a novel notion. Frameworks and descriptions of organizational management, change management, and building learning organizations are well established. Our contribution here is in developing a directly applicable framework for use in this specific instance in Basra, Iraq with its unique challenges and circumstances. The idea is best expressed through a paradigm that describes specific organizational competencies, practices, and sub-systems that exist within layers of a hierarchy of overall organizational performance. Webster's online dictionary defines a paradigm broadly as "a philosophical or theoretical framework of any kind".

We propose a paradigm or conceptual framework for growing the capacity of a public sector utility under the challenges faced in Basra, Iraq. This conceptual framework seeks to identify those organizational competencies that are necessary conditions to permit the organization to function at three increasing levels of performance. While we developed this framework for the Basra Water Directorate (BWD) we believe it can be used to help gauge and grow the organizational competencies of any of the utility sectors in Basra. It may also be exportable to other provinces in Iraq or other sectors, such as industry.

The first or baseline level consists of a set of baseline competencies. There are fundamental precursor conditions that must be in place in order for the organization to perform beyond the level of a passive recipient of funding and project work that is (almost completely) under the control of external agencies. With these competencies in place the organization can perform with significant external assistance, guidance and funding, but will begin to deteriorate (organizationally and physically) very rapidly without that assistance. Once these basic level competencies are in place, the organization can assess its current situation, develop a vision for the future, and

develop a strategy consisting of a set of milestones and requirements for moving toward that future.

We term the second level of performance as "operating competencies." These are a set of skills, processes and documents that enable the organization to operate and maintain its infrastructure components in a sustainable way. They build on the baseline competencies and, in order to support the competencies at the operating level, the baseline competencies need to be executed with a higher degree of organizational maturity.

The top level competencies are those that enable the public sector utility to perform as a learning organization. Learning organizations are "organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" [15]. Public sector utilities in this region should develop the capacity to perform as learning organizations because the political, economic, cultural and resource challenges they will face as they deliver services to growing populations over the coming decades will require adaptive, agile, organizations that can incorporate new knowledge and new technology, and have the capacity to implement sophisticated decision making and implementation strategies.

A diagram of this framework and what we propose as a set of competencies at each level of performance is provided at Figure 4.1.

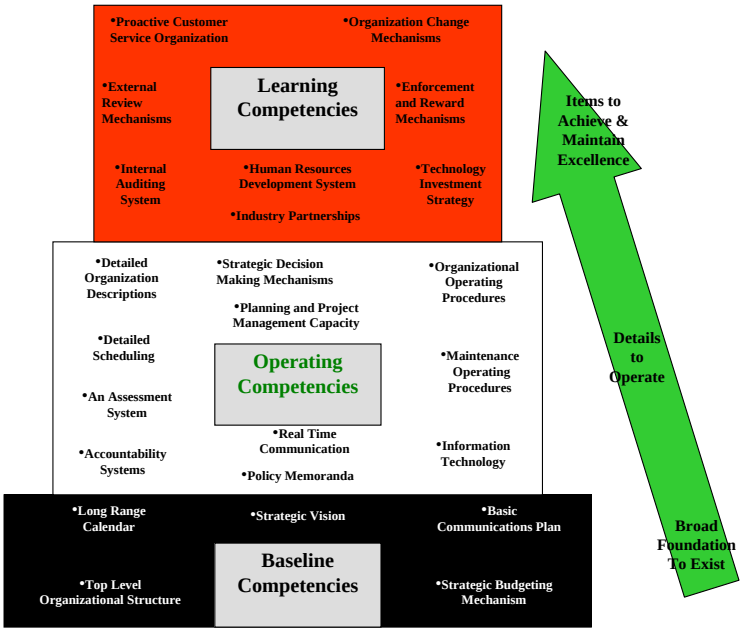


Figure 4.1: Framework and competencies.

Within each level of the framework we propose a set of competencies, which consist of organizational skills, processes, documents, or other components that the utility organization should possess on their own to achieve that level of performance. The current state of any organization is likely to contain competencies from each level operating at varying levels of maturity or effectiveness.

Consider a tiered approach to developing competency in the water directorate. For simplicity we will define three *Levels* of organizational performance. Each level will be built on the processes and organizational competency developed in the lower tiers. At each level those organizational skills, processes, documents, or other components of the lower level competencies should become more mature in order to support the higher level of performance.

4.1.1 Baseline Level

We define the baseline level of performance as an organization possessing the competencies that allow it to plan. With the baseline level of competencies the organization can function as more than a collection of competing desires. A public sector utility is not street market. A street market is a highly self organized collection of individuals who are each seeking to maximize their individual utility. A public sector service organization seeks to maximize the utility (level of service) provided to its customer base while remaining within budget and other constraints. Consequently the baseline level of organizational competencies are those that enable the organization to move from a bazaar like free-for-all, to an organization that has a unified goal, a means of communicating that goal to its people and a plan for achieving that goal. These are the baseline level of organizational competencies:

4.1.1.1 Strategic Vision

The organization must have a statement of its purpose and direction. Without a clear statement of the purpose and direction of the organization every person in it has their own individually derived notion of the direction the organization is headed. A strategy includes a clear, concise statement of an overarching vision or what the organization will become in the future. The vision should be easily understood, and it should be widely disseminated. The vision of an organization should derive from the vision of superior organizations, it should complement the visions of parallel organizations, and it should direct the visions of subordinate organizations. The organization's strategy then is the means to meet the vision and is articulated in the framework of goals and objectives.

4.1.1.2 Long Range Calendar

In parallel with a vision, the organization needs at the very least an idea of the steps it plans to take toward achieving its strategic vision, and the time scale on which the goals and objectives of its vision will be achieved. A long range calendar (3 to 5 years) can serve to focus planning and budgeting on the major steps necessary to meet the goals and objectives required to achieve the strategic vision. The calendar

includes milestones for fulfilling tasks that must be accomplished to meet goals and objectives.

4.1.1.3 Basic Communications Plan

The organization must have a base line means of communicating. The simplest workable communication tool is a system of scheduled periodic meetings. Strategic communication can be accomplished through nested hierarchical meetings. These require little information technology (IT) infrastructure. They will not be able to take the place of real time operational communication mechanisms, which are addressed at higher levels. Regularly scheduled meetings should follow a defined format, or meeting plan, consisting of the frequency and meeting time, duration, participants, and what information is reported in what format and by whom. The information gathered at meetings is used to support decision making.

4.1.1.4 Top Level Organizational Structure

The organization needs to have some sense of how it is organized. The organization needs to be rational and broken down along basic functional lines. At higher levels of organizational performance, the organization develops the means to adapt its own structure to better meet its vision, and in response to changing market or other environmental realities.

4.1.1.5 Strategic Budgeting Mechanism

The organization must know, at least in aggregate terms what its sources of funding are, and what its liabilities are. The strategic vision must be rational in light of a realistic assessment of funding streams and obligations.

4.1.2 Operating Level

We define the operating level of performance as an organization possessing the competencies that allow it to operate in a sustainable way without significant external help. At this level the organization moves from being a well-resourced good idea, to being able to produce, operate, maintain and manage its systems using

internal capabilities and resources. These are the operating level of organizational competencies:

4.1.2.1 Strategic Decision Making Mechanisms

The organization needs to precisely define what key decisions are necessary for it to operate, how these decisions fit into the overall schedule of the enterprise and time-line of the decisions. Decisions are based on information, so the organization must define the information that is needed from subordinate agencies, the environment, customers, and higher organizations to support each decision. It is necessary to make decisions under risk, but a precise quantitative approach to risk is probably more appropriate to a learning level organization.

4.1.2.2 Detailed Organization Descriptions (Authorization documents)

Beyond a wiring diagram, in order for the organization to operate, mid-level managers and front line supervisors have a document that describes the functions their subordinate organization is supposed to fulfill. This document also prescribes the number of people and equipment that are needed to fulfill the manager's functions and for which he/she is responsible. This document also describes the functions of the people within this subordinate organization. Shortages against this authorization document are known and routinely reported to higher-level managers. Plans for filling these shortages are developed and routinely reviewed, suggested on a quarterly basis.

4.1.2.3 An Assessment System

A detailed, written program of material and personnel assessment is in place. Periodic, standardized assessment of specific components, machines, facilities, and personnel is conducted on a routine basis by first line supervisors. Reports are generated and submitted to mid level managers on a longer cycle (e.g. monthly status reports). The organization conducts an overall assessment quarterly, and prioritizes resources to fix identified problems. At the operating level of performance the organization is able to identify needed changes in procedures on the basis of this internal assessment system and to implement these changes.

4.1.2.4 Detailed Scheduling (Short Range Calendars)

A way of displaying the routine cycle of tasks that the organization performs. In order for the organization to OPERATE, the routine must become routine. Routine maintenance must be performed routinely. Routine reports must be submitted routinely. This type of routine scheduling can be accomplished within a set of nested cyclic schedules: daily, weekly, monthly, quarterly, annually. This competency is critical to defining and enforcing maintenance and reporting procedures, which are vital to preserving existing capacity.

4.1.2.5 Planning and Project Management Capacity

The organization needs an internal planning and estimating capacity. Architectural drawings and engineering design can be very efficiently performed by experts outside the organization under contract. However, the organization must have the in house capacity to do preliminary plans and cost estimates in order to support long term infrastructure planning and budget planning. This competency also allows the organization to use external contractors effectively and ensure they are being given a good value for the contractor's work. The organization must have trained mid level managers who can oversee contractors as they execute detailed planning, scheduling, construction and integration of projects.

4.1.2.6 Organizational Operating Procedures (OOPs)

Operating procedures are written documents that describe how basic functions of the organization are performed. At a minimum the organization should document its human resources processes, its reporting processes (and schedules), and its communication processes. For example, who tells who what and when? How do we hire a new person and how do we integrate, train, and certify the new hire? How do we manage payroll? How do we manage development and advancement in the organization? Procedures describing how these and similar processes are performed in the organization need to be documented if leaders expect them to be implemented. These also help integrate new employees quickly into the organization.

4.1.2.7 Maintenance Operating Procedures (MOPs)

These are technical maintenance processes. They are derived from the manufacturer's maintenance schedules (service intervals, lubrication orders, and routine maintenance procedures) of installed equipment. These procedures also extend to vehicle and facilities maintenance, test and repair equipment maintenance, stocking and warehousing of repair parts, and resource accountability. The MOPs should cover unscheduled maintenance and define a specific WORK ORDER FORM, its generation, approval authorities, authorization to requisition repair parts and to commit maintenance resources. The MOPs should also define how documents are archived and activities are reported. These reports are critical to budgeting and other decisions related to organizational structure and resource allocation.

4.1.2.8 Policy Memoranda

The organization should have written and promulgated policies. These policies need not be all encompassing at this level. These might include basic policies on elements of the human resources (HR) system, training, safety, reporting, and routine operations. HR policy should include mechanisms for evaluating, promoting, and relieving personnel.

4.1.2.9 Real Time Communication

In addition to scheduled and unscheduled meetings, face to face discussions, ad hoc e-mail, and telephone calls, the enterprise operates using dedicated telephone, radio, and email communication systems to meet its operational needs. Table 4.1.2.9 below provides some information on the purpose, advantages and limitations of forms of organizational communication:

4.1.2.10 Information Technology

At this level the organization can benefit from implementing a more mature information technology framework. Who makes decisions about the IT infrastructure? How is it budgeted? How are personnel trained in IT? The organization needs

Table 4.1: Methods of communication

	Meetings	Email	Telephone/Cell	Radio
Purpose	• Information Sharing • Decisions • Deliberation	• Operational Decisions • Information • Delivery of scheduled reports and situation updates	• Real time operations • Negotiating schedules	• Coordinate in real time • Supervision • Operations and maintenance activities
Advantages	• Routinely Scheduled • Exposes interpersonal dynamics	• Fast • Archived • Shrinks distance • Can attach technical documents	• More personal • Network exists already	• Simple • Real time • Facilitates supervisor level decisions
Limitations	• Unwieldy and time consuming	• Impersonal • Requires IT and network infrastructure	• Requires more phones • Very limited number of participants at the same time • Potential misuse of the resource	• Short range • Expensive systems to implement and maintain

a written policy on IT. The level of IT support to various divisions and subordinate sections should be defined in accordance with their needs that are documented in the detailed organization descriptions discussed above. IT Inventories and upgrade plans should be maintained. The organization may need a separate GIS, planning and design department with unique specific IT capabilities. Data management, collection, and dissemination policies should be written and enforced. Consideration should be given in information technology planning to the available hardware, operating systems, software, network connectivity, and level of training of IT staff and operators. A baseline inventory and assessment of existing capabilities can be used to identify the most critical gaps in capability, and the most effective way to make improvements to the IT system under a constrained budget. Hardware re-use enabled by freely distributed software should be considered in life cycle cost analysis of components of the IT program. The need for IT systems that function well in

Arabic should also be considered.

4.1.2.11 Accountability Systems

A system of accounting for personnel, equipment, facilities, and expenditures should be in operation. The procedures for accounting for resources through routine reporting and periodic spot checking by supervisors and managers should be written down and ultimately maintained in electronic databases.

4.1.3 Learning Level

We say that an organization has reached the learning level of performance when it possesses the competencies that allow it to first recognize changes in its operating environment, and second develop and implement necessary organizational changes in response to this changing environment in order to meet the needs of its constituency. The learning organization routinely asks and tries to answer questions such as: Why are we doing things this way? How can we do it better? Information is freely exchanged inside and outside the organization, and industry leading best practices and innovations are rapidly adopted. These are the learning level of organizational competencies:

4.1.3.1 Enforcement and Reward Mechanisms

At this level, the processes for evaluation, promotion, demotion, and relief of personnel should be operating at a mature level. Supervisors and managers should be evaluated routinely against objective standards of performance that are agreed upon at the start of the performance period by both supervisor and subordinate. Bonuses, merit pay increases, and a rational performance-based pay schedule should be documented and implemented. The entire work force should be aware of opportunities for advancement and standards of performance. Ethical conduct standards and a culture of stewardship, or taking responsibility for the proper care of the resources to which you are entrusted, should be ingrained into newly hired employees.

4.1.3.2 Internal Auditing System

The organization should implement an internal, independent audit agency that periodically reviews reports and budget execution. This agency should have access to the entire written and digital record of the organization and should submit regularly scheduled reports to the organization's senior leadership regarding the effectiveness of organizational processes and policies. This internal, independent audit agency should report directly to the organization's senior leaders but also have an agency outside the organization to which it can turn for mentorship.

4.1.3.3 External Review Mechanisms (Board of Visitors, Board of Advisors)

The organization should invite respected members of the community, political leaders, and persons from outside the organization who have expert knowledge of contemporary best practices to periodically (approximately every 2 years) review documents, procedures, and internal audit results with the aim of making concrete recommendations for organizational improvement. This external board of advisors should represent the constituency the organization serves and be apolitical, that is the members of this board should not be selected out of political expediency.

4.1.3.4 Human Resources Development System

At this level the organization's HR department goes beyond hiring, integrating, and compensating employees, and takes an active role in developing its work force through training programs and supervisor/manager development systems. The HR department searches for appropriate developmental opportunities for its employees including continuing education programs, specific technical and managerial training, and keeps the organization on pace with the best practices in the industry for evaluation, compensation and incentive packages.

4.1.3.5 Relationships with other learning organizations

The organization participates in a community of similar enterprises and shares and adopts lessons learned, IT solutions, and best practices on a regular basis. This includes participation in industry forums and professional conferences.

4.1.3.6 Technology Investment Strategy

The organization's strategy includes provision for the adoption of new technology including IT solutions and technical solutions for delivering its services. The organization explores improvements to its operations that are aimed at environmental considerations.

4.1.3.7 Organization Change Mechanisms

Mid level managers in the organization have a mechanism for requesting adjustments to their authorizations. The specific justifications for these changes are documented. The organization has a means of prioritizing these requests and implementing them within a strategic framework. The organization recognizes that change is a difficult concept to accept for many people and puts leadership emphasis on setting the conditions for people to embrace the organizational changes adopted.

4.1.3.8 Proactive Customer Service Organization

The organization has multiple means of communicating with its customers strategically as a group (initiatives, expectations, and marketing) and as individuals (complaints, installation, billing). The organization routinely does focus groups with customers to get their perceptions of the utility services provided and to test new ideas. The customer is seen by the organization as the reason the organization exists. The customer is a primary stakeholder and a primary means of identifying new needs and new opportunities.

4.2 Evaluation of Basra Water Directorate against this paradigm.

In this section we assess the organization against the paradigm described above and single out the most critical competencies that should be high priorities for developing the organization's capacity to operate routinely. We rely extensively on the information provided in the detailed study by a consulting firm in Japan, The Feasibility Study on Improvement of the Water Supply System in Al-Basra City and its Surroundings in the Republic of Iraq, since security concerns prohibit us from

spending time in the BWD headquarters [5]. We also rely on information provided to us in various meetings with the leadership of BWD. In the following section we will provide some recommendations for the BWD to enhance its organizational capacity.

4.2.1 Global Observations of Challenges

Up front the main observation we have of the BWD and other sectors is that they currently appear to be "project-focused" rather than organizationally focused. This means that the sectors identify the projects needed to create the capacity and delivery systems for providing their service but are not apparently also focused on developing the capacity to maintain and manage these systems over time. This *must change* in order for these organizations to begin carrying out sustained operations without international assistance.

We have two other global observations that are significant challenges impeding the growth of the utility sectors into self-sufficient entities capable of providing adequate service to the people of Basra. The first is lack of an educated workforce, including managers, engineers, technicians and laborers. In the BWD slightly less than 6% of the workforce has a Bachelor or higher degree (79 out of 1423). Potentially more critical, 43% of the workforce has no formal education including primary school[8]. Figure 4.2 provides the education levels of the BWD labor force that we received directly from their leadership.

[8]Statistics provided by the IT Manager for the BWD during a meeting. The JICA report also had the percentage of degree holders in the BWD however this report did not list the percentage of illiteracy.

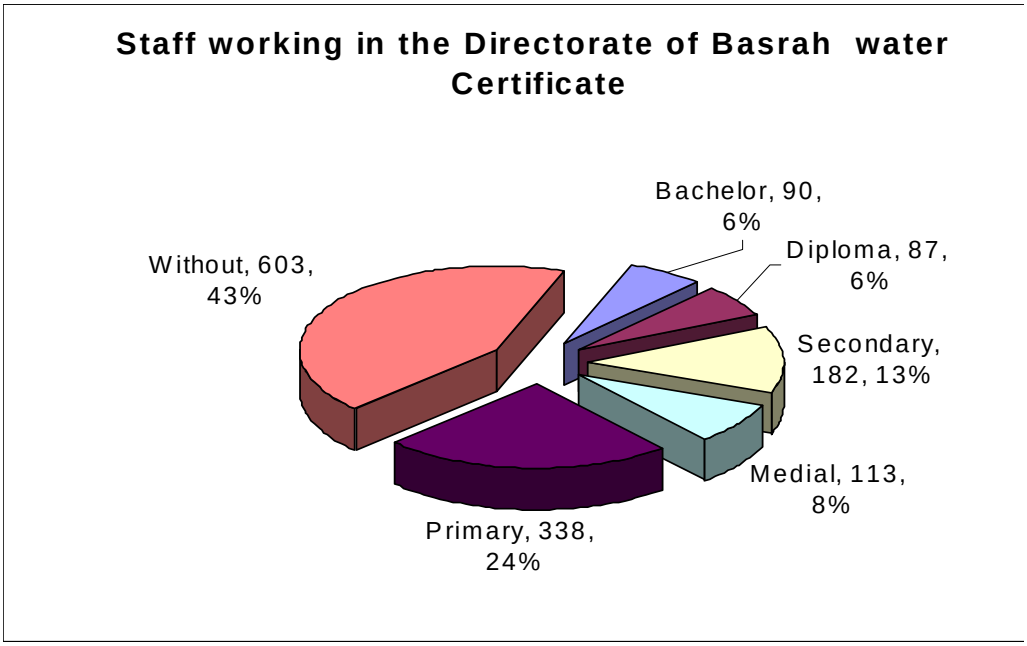


Figure 4.2: Education levels of the BWD workforce.

This means that a great majority of the laborers and technicians cannot read and follow a chart or list of recommended maintenance procedures for a piece of equipment. The impact of this is evident from the lack of maintenance being performed on new facilities that have been constructed since 2003.

The other significant challenge is the lack of incentives or enforcement mechanisms to change employee or consumer behavior. Anecdotally we understand that several of the 1423 employees in the BWD are 'ghost workers' or do very little to earn their paycheck. Managers have little incentive to improve their organizations while the national ministries also have little apparent oversight or control over the utility sectors in this region of the country thereby providing no enforcement mechanisms to demand good managerial processes. The Governor's office also apparently

exercises little control over the running of the utility sectors in Basra. The collection of usage fees for water and electricity are very limited and are not actively enforced at present. The leaders of the BWD and the electricity sector we spoke with expressed reluctance to enforce collection of usage fees from consumers because utility service is so sporadic. This has led to relatively unbridled demand for these services that has put a great strain on the poorly maintained utility systems. These are both long-term challenges that will take years to correct. However, that does not mean the provincial government and international community should wait to start the process for change. Solutions to these challenges should start now even if they are incremental or small, focused approaches to these challenges.

The Basra Water Directorate has in place several of the necessary competencies of the baseline level of performance described above. It has also begun to develop some of the operating level competencies that will enable it to operate in a stable sustainable way. The way ahead for the organization is to grow its internal operating procedures and documents within its existing structure until it is functioning as an Operating Level organization. As a strategic goal beyond the 3 to 5 year time horizon, the organization should seek to grow into a learning organization. The following provides our assessment within each of the competencies.

4.2.2 Baseline Level

We define the baseline level of performance as an organization possessing the competencies that allow it to plan. Remember at this level of organizational performance the BWD would have a unified goal, a means of communicating that goal to its people and a plan for achieving that goal.

4.2.2.1 Strategic Vision

The organization must have a statement of its purpose and direction. The only current vision statement we could find was in the provincial development strategy for Basra that was developed by the Provincial Council; "our ambition is to seek to achieve all the public services that the citizens are looking forward in a democratic sphere that provides them with decent living standards and to make Basra an economic and cultural attraction center" [16]. It is encouraging that this is focused on

delivering proper services to the people of Basra. We could find no vision statement for the BWD. The vision for Basra above should drive the vision statement of the BWD. Within the same provincial development strategy document is a list of 17 goals for the water sector. These demonstrate the concept of 'projects-focus' we discussed earlier.

Engineer Munam, the Director General (DG) for the BWD, did articulate during a meeting with us a long-term strategy for improving the water utility services. He wants to create five zones for the province each with a large, major water treatment facility and reduce the sector's reliance on many, smaller water treatment plants. The smaller plants each require a power generation source and transmission systems for bringing in untreated water and moving treated water to distribution systems. The other downside to several smaller facilities is that they are harder to secure in the current security situation. While Engineer Munam's vision looks promising and is consistent with the recommendations of the JICA report, it is not achievable in any realistic time horizon. This will take hundreds of millions of dollars and years to implement. The BWD should develop objectives and goals that are achievable in the next year to 3 years that are consistent with moving towards this long term strategy. We have found no documents that contain this long term vision stated by Munam.

4.2.2.2 Long Range Calendar

In parallel with a vision, the organization needs at the very least an idea of the steps it plans to take toward achieving its strategic vision, and the time scale on which the goals and objectives of its vision will be achieved. We have no evidence that the BWD has a long-range calendar to focus the organization on the necessary goals and objectives to achieve their vision.

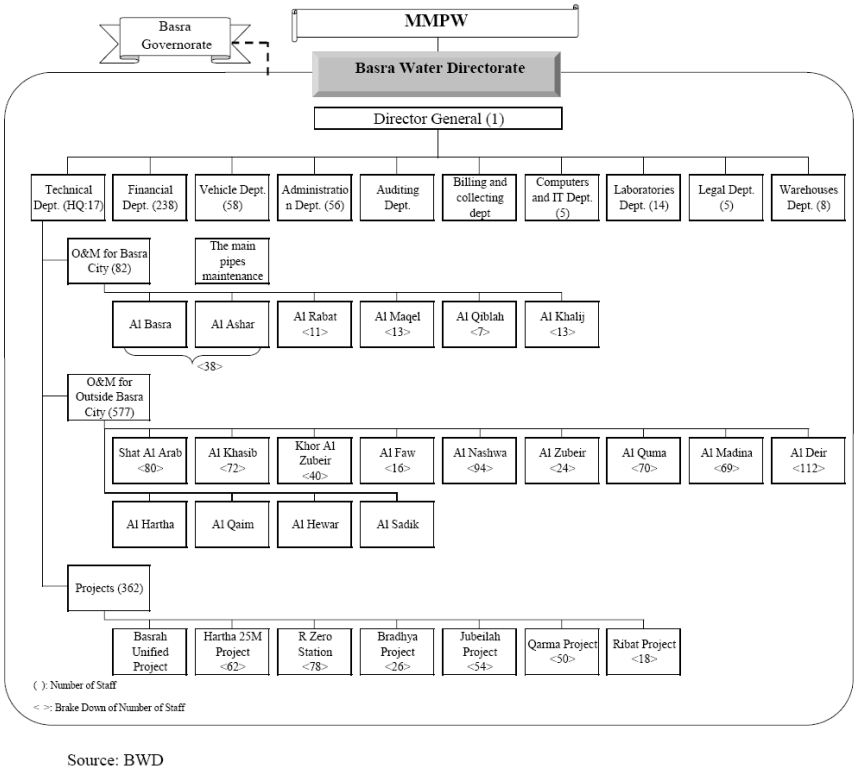
4.2.2.3 Basic Communications Plan

The organization must have a base line means of communicating. The simplest workable communication tool is a system of scheduled periodic meetings. During our interviews with the BWD leadership they stated that communication was adequate within the BWD headquarters building but not with any subordinate organization

outside the headquarters. The organization does have 50 computers but we do not know how extensively they rely on email for internal communication. Also, they indicated that communication with the Ministry of Municipalities and Public Works in Baghdad was not good. They did state that the communication between the DG and the Provincial Council members was good however this is not necessarily a good thing. The Japanese study [5] also found that communication was a challenge for the BWD.

4.2.2.4 Top Level Organizational Structure

The organization needs to have some sense of how it is organized. The organization needs to be rational and broken down along basic functional lines.



Source: BWD

Figure 4.3: Organization diagram for the BWD.

Figure 4.3 which was provided by the Department head of the Computers and IT Department of the BWD, shows the basic organizational structure of the directorate.

The Projects subordinate organization consists of the major treatment plants. The O&M sections are the organizations responsible for the distribution networks in specific geographic areas.

4.2.2.5 Strategic Budgeting Mechanism

The organization must know, at least in aggregate terms what its sources of funding are, and what its liabilities are. The BWD understands the sources of its funding. Basically they receive operations and maintenance funding from the national Ministry of Municipalities and Public Works. They receive funding for capital projects from international donors and the central government through coordination with and approval from the Provincial Council. The BWD has received donor money for construction and rehabilitation of its systems. They need more and the Japanese government is proposing an aid package to share the cost of a major renovation of the system with the Government of Iraq for Al Basra city starting in 2009.

Funding from the national Ministry of Municipalities and Public Works is inadequate and not correctly apportioned to meet the needs of the BWD. Table 4.2 provides the operations and maintenance budget for 2005 for the BWD (data taken from Table 8.5 of the JICA Study, 2007). This data shows that 88% of the BWD O&M budget goes to salary while only 12% goes to any item related to operating and maintaining the systems (electricity, supplies, etc.). While the BWD understands it sources of funding, they do not appear to understand how to determine the costs of operating and maintaining their infrastructure. This data indicates the lack of emphasis on maintenance of the systems, which is reflected in the current condition of the systems. Without an emphasis on maintenance and operation reflected in their budget for O&M the systems will continue to deteriorate over time.

Table 4.2: BWD budget lines.

Item	2005 (Million Iraqi Dinar (ID)/Year)	% of Total O&M Budget
Salary	4,419	88.3%
Operating budget	350	7%
Electricity		
Consumable (Chemicals for WTP)		
Consumable (Chemicals for RO)	231	4.6%
Consumable (Membrane)		
Other Consumables (Maintenance)		
Others	4	0.1%
Total (Million ID/year)	5,004	100%
Total (Million UD$/year; assumes $1=1515 ID)	3.3	100%

4.2.3 Operating Level

We define the operating level of performance as an organization possessing the competencies that allow it to operate without external help. At this level the organization moves from being a well-resourced good idea, to being able to produce, operate, maintain and manage its systems using internal capabilities and resources. The BWD demonstrates some competencies consistent with this level however these do not appear to be codified into the organizational culture. The extremely poor condition of their distribution system is largely a result of the BWD's shortcomings in these organizational competencies.

4.2.3.1 Strategic Decision Making Mechanisms

The organization needs to precisely define what key decisions are necessary for it to operate, how these decisions fit into the overall schedule of the enterprise and timeline of the decisions. The BWD Directorate General and senior leadership appear to understand what is needed to improve the physical systems of the BWD. They also appeared to understand the timeline and sequencing of improvements

that need to be made. However we found no evidence of a planning timeline for implementing these improvements. Further, the DG reported poor communication with subordinate organizations outside the main BWD headquarters building so they do not apparently have a system for determining the information they need from subordinate organizations. This includes determining the type and frequency of reporting the information.

4.2.3.2 Detailed Organization Descriptions (Authorization documents)

Beyond a wiring diagram, in order for the organization to operate, mid-level managers and front line supervisors have a document that describes the functions their subordinate organization are supposed to fulfill. This document also prescribes the number of people and equipment that are needed to fulfill the manager's functions and for which he/she is responsible. This document also describes the functions of the people within this subordinate organization. The BWD has an overall organizational diagram that documents the number of people within each subordinate organization however they do not apparently have any written descriptions of the functions or responsibilities of these subordinate organizations. Without these it is difficult to assess and hold leaders accountable for the performance of their organization.

4.2.3.3 An Assessment System

At the operating level of performance the organization is able to identify needed changes in procedures on the basis of this internal assessment system and to implement these changes. We found no evidence of any written program of material and personnel assessment in place. This makes it difficult for leaders throughout the organization to understand and communicate the condition of facilities and quality of people. It also makes it difficult to plan for and program needed improvements.

4.2.3.4 Detailed Scheduling (Short Range Calendars)

A way of displaying the routine cycle of tasks that the organization performs. This type of routine scheduling can be accomplished within a set of nested cyclic schedules: daily, weekly, monthly, quarterly, annual. We found no evidence that

this competency, which is critical to defining and enforcing maintenance and reporting procedures, exists in the BWD. The current condition of the BWD systems is evidence of the lack of this competency.

4.2.3.5 Planning and Project Management Capacity

The organization must have the in house capacity to do preliminary plans and cost estimates in order to support long term infrastructure planning and budget planning. We found the BWD leadership lacking this capacity and relying solely on external organizations for any project planning and management work. We conducted training directly with the chief engineer planner on basic project management skills, including defining project scopes, developing work breakdown structures and creating Gantt charts and estimated cost reports using project management software. We will continue this effort during a follow-on workshop in September 2007. We will also provide them Microsoft Project®software and conduct training on its use.

4.2.3.6 Organizational Operating Procedures (OOPs)

Operating procedures are written documents that describe how basic functions of the organization are performed. At a minimum the organization should document its human resources processes, its reporting processes (and schedules), and its communication processes. We found no evidence that these exist in the BWD.

4.2.3.7 Maintenance Operating Procedures (MOPs)

These are technical maintenance processes. They are derived from the manufacturer's maintenance schedules (service intervals, lubrication orders, and routine maintenance procedures) of installed equipment. These reports are critical to budgeting and other decisions related to organizational structure and resource allocation. We found no evidence that these exist. Further given the lack of education of the workforce it is doubtful that the laborers in water treatment plants and other facilities could read these maintenance manuals. The condition of the BWD systems reflects the organization's lack of capacity in this competency.

4.2.3.8 Policy Memoranda

The organization should have written and promulgated policies. These might include basic policies on elements of the human resources (HR) system, training, safety, reporting, and routine operations. Again we found no evidence that these exist in the BWD.

4.2.3.9 Real Time Communication

In addition to scheduled and unscheduled meetings, face to face discussions, ad hoc e-mail, and telephone calls, the enterprise operates using dedicated telephone, radio, and email communication systems to meet its operational needs. Communication systems in the BWD are extremely limited. The leaders have gmail or yahoo.com email addresses but no BWD intranet. Phone communication is limited with organizations outside the BWD headquarters. We believe that lack of communication severely hampers the organizational competency of the BWD.

4.2.3.10 Information Technology

At this level the organization requires a more mature information technology framework. The organization needs a written policy on IT. The level of IT support to various divisions and subordinate sections should be defined in accordance with their needs that are documented in the detailed organization descriptions discussed above. The BWD has a computer/GIS department consisting of 5 people (out of 1423 in the BWD). The head of this department is a competent, motivated individual who is actively seeking to improve the organization's IT capacity however his resources and the education level of the workforce significantly hampers him in this effort. We found no evidence of an organizational IT policy or plan.

4.2.3.11 Accountability Systems

A system of accounting for personnel, equipment, facilities, and expenditures should be in operation. The procedures for accounting for resources through routine reporting and periodic spot checking by supervisors and managers should be written down and ultimately maintained in electronic databases. Again we found no evidence of this.

4.2.4 Learning Level

We say that an organization has reached the learning level of performance when it possesses the competencies that allow it to first recognize changes in its operating environment, and second develop and implement necessary organizational changes in response to this changing environment in order to meet the needs of its constituency. We believe the BWD leadership knows the condition of its infrastructure and somewhat understands the competency level of its organization. However this is not apparently due to possessing learning level skills but rather due to the extensive external assessments that have been performed by international agencies.

4.2.4.1 Enforcement and Reward Mechanisms

At this level, the processes for evaluation, promotion, demotion, and relief of personnel should be operating at a mature level. Supervisors and managers should be evaluated routinely against objective standards of performance that are agreed upon at the start of the performance period by both supervisor and subordinate. The BWD does have an administration department in the headquarters however we do not know the level of their human resource management capacity. We believe that they do not possess a robust human resources management competency that is used to recruit, evaluate, motivate, train and keep highly skilled workers.

4.2.4.2 Internal Auditing System

The organization should implement an internal, independent audit agency that periodically reviews reports and budget execution and reports directly to the organization's senior leaders. The BWD does have an internal audit department however their function is simply to check that paperwork is correctly filled out. They are not used to check internal processes. They do not have broad authority to conduct audits, identify discrepancies, and enforce compliance.

4.2.4.3 External Review Mechanisms (Board of Visitors, Board of Advisors)

The organization should invite respected members of the community, political leaders, and persons from outside the organization who have expert knowledge

of contemporary best practices to periodically (approximately every 2 years) review documents, procedures, and internal audit results with the aim of making concrete recommendations for organizational improvement. We found no evidence this exists for the BWD. The only external review mechanism now is the elected provincial council member, Dr. Hamid, who serves as the council focal point for potable water services. However our observation is that he attempts to insert himself as the Chief Executive Officer of the BWD rather than serving as an external reviewer of the organization to insure it meets the needs of the constituents. This relationship between the BWD and the Provincial Council hampers the functioning of the BWD.

4.2.4.4 Human Resources Development System

At this level the organization's HR department goes beyond hiring, integrating, and compensating employees, and takes an active role in developing its work force through training programs and supervisor/manager development systems. The BWD administration department does not function at this level.

4.2.4.5 Relationships with other learning organizations

The organization participates in a community of similar enterprises and shares and adopts lessons learned, IT solutions, and best practices on a regular basis. This includes participation in industry forums and professional conferences. We found no evidence that this exists.

4.2.4.6 Technology Investment Strategy

The organization's strategy includes provision for the adoption of new technology including IT solutions and technical solutions for delivering its services. The BWD has no such strategy.

4.2.4.7 Organization Change Mechanisms

The organization recognizes that change is a difficult concept to accept for many people and puts leadership emphasis on setting the conditions for people to embrace the organizational changes adopted. The BWD does not appear to have any process for helping the organization adopt change.

4.2.4.8 Proactive Customer Service Organization

The customer is seen by the organization as the reason the organization exists. The organization has multiple means of communicating with its customers strategically as a group (initiatives, expectations, and marketing) and as individuals (complaints, installation, billing). The BWD does not apparently have any mechanisms for customer service outside of the very limited capacity they have to charge usage fees for a very limited number of customers.

4.3 Recommendations to Build the Capacity of the BWD Organization.

The BWD needs to develop its organizational capacity in order to meet its functional responsibilities to the people of Basrah without continued significant international assistance. The BWD is not alone in this need. We worked with the Electricity, Sewerage and Municipalities utility sectors also and found that all have varying levels of organizational competencies.

We suspect that this is not unique to these four utility sectors in Basra but rather indicative of a larger nation-wide issue. Stuart W. Bowen, Jr., Special Inspector General for Iraq Reconstruction, recently completed a report that was highlighted in a Washington Post article[9]. He found that several major completed projects had not been turned over to the Iraqis when they refused to accept them because they did not have the capacity to operate and maintain these. This is likely due to several factors including lack of reliable power sources, lack of government funding for maintenance material and equipment, lack of operator competency and lack of organizational competency to operate and maintain these systems. The international community is investing hundreds of millions of dollars into building and rehabilitating utility systems in Iraq however we believe that comparatively little is being invested in developing the utility organizational competencies to operate and maintain these systems. We do not have the investment data to back up this claim however. We base this on our anecdotal observations of the investments made in the utility sectors of Basra.

[9]Washington Post, "Report Says Iraq Lags on Rebuilding", Dana Hedgepeth, 29 July 2007

While our focus here was the BWD we have some general recommendations that are applicable to all utility sectors in Basra. First we believe that investment in developing the organizational competency of the utility sectors in Basra and likely in other provinces will provide a high marginal return in terms of organizational performance. Figure 4.4 illustrates this concept. Our observation is that utility sector organizational competencies and performance levels are low and that investing in the development of these can lead to relatively significant gains in performance. A small investment could lead to large performance gains relative to their current levels so the marginal return on investment in organizational development is potentially high.

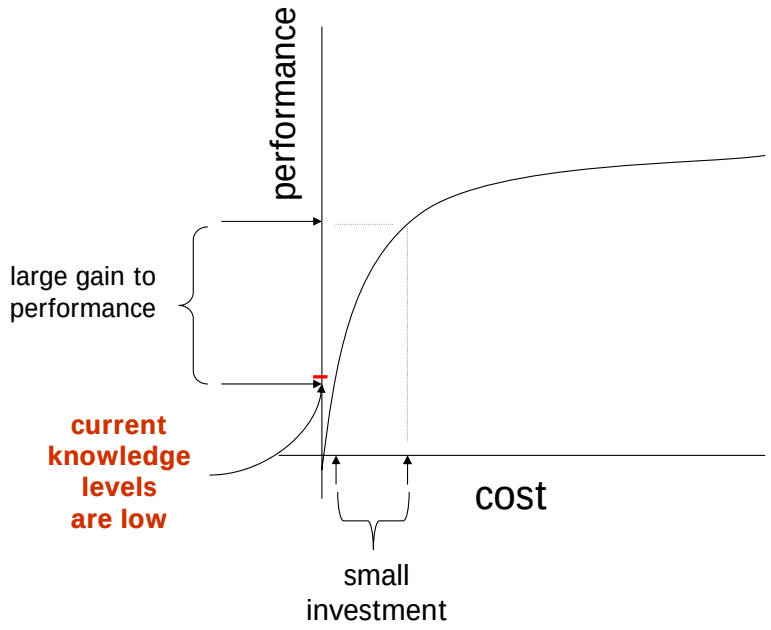


Figure 4.4: Return on investment in organizational performance.

Second this investment should include creating teams with technical engineer-

ing and management skills that can assist the capacity development of the utility sector organizations through regular engagement. This means dedicated teams with longevity that can interact with the utility sector organizations in a province on a frequent, regular basis. This engagement mechanism needs to be flexible to adapt to the needs of the client organization rather than focused on providing a specific service or training regime. Figure 3.1 in Chapter 3 illustrates this engagement concept.

We found over six weeks in Basra that we developed bonds of trust with the lead engineers of the four utility sectors by meeting with and conducting training sessions with them on a regular basis. We had to adjust our training objectives and planned methods as we progressed as we came to better understand their needs. The feedback we received from those present at these sessions was very positive.

Our third general recommendation is for the Provincial Reconstruction Team in Basra to develop and conduct a regular industry forum of the utility sector organizations. The intent of this would be a forum for sharing information and best practices between the leaders of the utility sectors. The organizational management paradigm described in this chapter could be used to provide the agenda for such forums with selected competencies being the focus of different forums. The utility sector engagement teams, if developed and resourced, could also facilitate these forums.

We have some specific recommendations to develop the capacity of the BWD. These are likely applicable to many of the other utility sector organizations in Basra. These recommendations are listed in priority order:

1. The BWD leaders need to develop a realistic strategic vision for the sector that specifies goals and objectives for improving the systems. The BWD needs to specify milestones that indicate the future attainment of these goals and objectives. These goals and objectives should include the training needs of the workforce. This general plan for achieving this vision needs to be reflected on a timeline that is disseminated throughout the BWD and to the Provincial Governor's office, Provincial Council and national Ministry of Municipalities and Public Works.

2. The BWD needs to improve its internal communication mechanisms as soon as possible. This includes email, meetings and telephone communications. They should consider consolidating some of their subordinate organizations in order to reduce the complexity of communicating within the organization. Improving internal communications is a necessary precursor to improving organization capacity in most of the competencies discussed in this chapter.

3. The PRT needs to work with the Provincial Council to redefine the roles of the utility sector focal points. The PRT should work to help the utility sectors develop a closer relationship with the Governor's office staff and with the national Ministry of Municipalities and Public Works. We observed that the close supervision of the elected Provincial Council Focal Point member over the BWD Directorate General was an apparent impediment to the organization.

4. All future construction projects undertaken in the utility sectors, particularly those financed by international donors, should require a specific resourced training component built into the contract. This training should focus on the operations and maintenance of the specific facilities being constructed in the project.

5. The BWD should define, *in writing*, subordinate organization functions, responsibilities and reporting requirements and hold them accountable for meeting these.

6. The BWD needs to determine the true operations and maintenance needs for their systems and request the budget to support those from the National Ministry of Municipalities and Public Works.

7. The BWD should look at the best practices of peer organizations and adopt those. For example the Dubai Electricity and Water Authority (DEWA) has much information on its practices available on its website (`www.dewa.ae`) that the BWD could adopt. The Water Authority of Jordan also has a great deal of information available on its website (`http://www.waj.gov`) including a detailed long term development plan for water resources in Jordan completed

by a German engineering firm. The Scottish water authority is also a source for best practices that the PRT could access and provide to the BWD.

8. The BWD should define and enforce an internal assessment and reporting system for infrastructure and personnel. These processes need to be documented and disseminated throughout the organization.

9. The BWD should develop a human resources (HR) department that performs the functions defined in the HR competencies discussed in this chapter. They should look to one of the benchmark organizations mentioned in (7) for ideas.

10. The BWD should then focus on becoming a customer service oriented organization. The DEWA is apparently an exemplar organization in terms of customer service. The BWD could learn a lot from DEWA in this competency.

11. Once the above are met then BWD should focus on improving their systems for revenue generation and collection. According to the JICA report, BWD recovers only 14% of the operations and maintenance costs through collection of usage fees. It will be difficult to enforce collection until the distribution system reliability and quality of water is significantly improved. Customers need to see some improvement to gain enough trust in the BWD to pay for the service.

4.4 Concluding Remarks

Our intent was to provide a model for evaluating the organizational capacity of a public sector utility in the province of Al Basra to meet the needs of the people without international assistance. We applied this specifically to the BWD organization because we were asked to and we had the most assessment information about this utility compared with the other utility sectors. We provided our recommendations for developing the capacity of the BWD to plan and operate on its own.

We contend that this organizational management model can be applied to the other organizations responsible for operating public sector utilities in Basra and

potentially other agencies. We recommend that the Provincial Reconstruction Team work with the other sectors to first assess the organization in terms of this model and then seeks ways to help the sector build their capacity in the competencies needed.

CHAPTER 5
Building Information Technology Capacity

5.1 Assessment

During the course of our initial interviews, assessment, and instruction we made several observations about the state of the information technology infrastructure in each of the technical directorates. Moreover, we were able to make observations about the level of expertise in information technology management and of each organization's capacity for internal assessment, IT planning, integration, and training. Significantly, the observations we present and the recommendations we make are not new. The Japanese Final Report, released in January 2006, makes the same points. In a series of meeting minutes produced in the fall of 2005, British Warrant Officers Griffiths and Sivyer [**?**] identify the same needs. In the intervening two years, personnel from the municipalities, sewerage, and water D.G.s received some application specific (GIS and CAD) training.

5.1.1 GIS Training and Competency

The primary source and focus of training to the sectors over the past two years has been in the area of Geospatial Information Systems. This training was provided by Fluor and Mott MacDonald at the renovated R-Zero complex, and by Research Triangle Institute (RTI) to municipalities and sewerage as part of a larger effort to catalog and digitize the existing historical map record for the Basra Municipality [5]. We were able to obtain the current AutoCAD (.dwg) database for this effort, along with a fairly large collection of Iraqi produced data files in ESRI shape (.shp) file format. The effort provided a potentially valuable digital base map for Basra, and also provided several trained AutoCAD users to the Municipalities Directorate, but it did not serve to build the in-house IT planning capacity of the organization or to deepen the level of basic computer literacy. Further, while the AutoCAD data set generated under the RTI contract is in the hands of the Iraqi municipalities directorate, the ArcGIS data generated by the Mott MacDonald contracts has not

been released. The IT chief from the Water D.G. cites as his most important need a set of base raster maps on which to build GIS models of the province wide water network. Figure 5.1 is an example of a GIS product developed in support of a proposed project in the municipalities and sewerage directorate that was used as an example during training.

Figure 5.1: GIS product for sewer project.

5.1.2 Assessment Observations

We made the following observations about the current state of enterprise information technology in the directorates. These apply to all of the directorates, but each directorate has unique challenges and needs, different specific personalities in leadership positions, different existing hardware and software, and different levels of training.

- In each directorate there are a few skilled computer users. These people have been trained by contractors (e.g. Mott MacDonald, RTI) on specific computer applications (e.g. ArcGIS, AutoCAD). These individuals also have general application user knowledge of office suite and database software.

- In each directorate the number of trained users is small. Basic computer literacy does not extend very deep into these organizations. For example, the division chiefs within the organizations have and use computers, but one level down the structure in the operations sections there are large numbers of employees who are not at all computer literate, and a significant number, around 50% of these employees have almost no education whatsoever and are effectively illiterate.

- Each directorate has a small number of high end workstations specifically for running high end GIS and CAD software. There are not very many general purpose (Office. email) user workstations in the IT structure of any of the organizations.

- The IT director from the water D.G. showed me a large number of custom developed printed forms for conducting routine operations, such as residential hook up and warehouse inventory.

- The IT director from the Municipalities D.G. showed me a fairly elaborate Access Database linked to Excel spreadsheets. This is a fairly high level (power user) implementation, but he is the only person in his organization who knows how to use the technology at this level.

- There is no enterprise intranet in any of the organizations. There is some internet connectivity, typically one of the machines in the "Computers" department is connected to the internet through a high speed satellite connection. One of the IT department heads asked specifically for a 16 port network hub so that he could hook up more of his computers to his single high speed internet connection. There are no municipal network administrators or servers. Personal email accounts through gmail and yahoo are the only email accounts used.

- Unreliable power is an important consideration, and laptop computers and small UPS backups are an important element of the IT infrastructure.

- Because the number of computers is severely limited, printed reports, forms,

and documents are vital to routine operations, and printers (and printer supplies) are important to keeping the enterprise functioning.

- Other technology such as digital cameras and hand held GPS systems are a critical capabilities gap for each of the organizations. Each of them identified the requirement for a digital camera to make in house facility assessments.

- All of the IT infrastructure is based on Windows. The Municipalities D.G. does not have the necessary licenses to run ArcGIS, while water and sewer do have licensed (with USB keys) copies of the software.

- Each sector had knowledge of Primavera project management software[10], and all of them said they require training in its use. They are completely unable to derive any utility whatsoever from this software, because it is too complex, and perhaps because they have no training in the fundamental project management concepts which are implemented in this type of software.

5.2 Information Technology Engagement

As part of the training and engagement effort we worked with IT personnel from the water, municipalities, and sewerage staffs. Against the reality of the physical infrastructure, education level, and training considerations discussed above, we found the same lack of basic planning capability in the IT departments that we found in other areas of public sector operations. The IT department heads found developing a plan for IT infrastructure and training improvement very challenging. They were able to generate lists of needed IT items, but they were not comfortable articulating in a written document specific capability needs and implementation plans. For example, Figure 5.2 is a copy of what was termed an IT Plan by the IT manager from the Municipalities Directorate. The third column in this document gives the number of systems "required." As an example of a lack of basic IT planning skills, the request includes five desktop computers and five A3 printers. A networked printer solution was not considered as an option. This request was specifically to equip the GIS and Computers departments of the Municipalities Directorate. It

[10] `http:\\www.primavera.com`

ت	التفاصيل	العدد	السعر بالدينار	المبلغ بالدينار
١	Plotter hp design jet 850 size Ao	٢		
٢	Scanner contax color size Ao	٢		
٣	كاميرا نوع سوني sony – n2 ١٠ ميكا بكسل مع SD RAM 1G	٣		
٤	حاسبة شخصية بالمواصفات 1. DELL (COMPLET SYSTEM) 2. VISTA SYSTEM ORIGEN 3. CPU 3 GB 4. HARD 160 G B SATA 2 5. RAM 1 GB (512 * 2) 6. MONITER LCD TFT (17 ") 7. DVD W/R 8. VIDEO CARD 128 MB 9. UPS 1500 APC 10.FLASH RAM 1 GB	٥		
٥	جهاز GBS TRIMBLE GEO XT	٣		
٦	LAB TOP DELL vista original CPU 3 G AMILO - 1G RAM – 256 VIDEO CARD – DVD W\R – WIRLESS - HARD 160 G SATA2 + COOLER	٥		
٧	طابعة ليزريه عادية A3	٣		
٨	هارد دسك متنقل 3.5" - 300 GB	١		
٩	برنامج GIS 9.2 SINGLE USER	٥		
١٠	حبر بلوتر ملون واسود من نفس نوع الطابعة في الفقرة ١	١٠		
١١	ورق لجهاز البلوتر من النوع السميك الجيد وحجم A0	١٠		
١٢	منظومة انترنت كاملة حديثة مع اشتراك لمدة سنه DAWONLOAD -512 — UPLOAD 1024	١		
١٣	مكتبة مزججة	٢		
١٤	ميز حاسبة ١٢٠ سم مع كرسي حاسبة من النوع الجيد	٥		
	المجمـوع :			

Figure 5.2: IT request from municipalities.

included no consideration of the installation of the gear (e.g. facility layout), the integration of this equipment into current operations or operator training.

Figure 5.3 is a similar request document from the IT manager from the Water D.G.. Note that both of these documents were prepared in Excel with the user skill in evidence from the formatting used. Note also that each specifically requests digital cameras. The IT leaders identified digital cameras and hand held GPS devices as critical tools that they lack and need to carry out in-house assessment, operations, and monitoring. We offer specific recommendations about these tools later in this chapter.

No.	Description	Qunt.	Rem.
1	Computer Laptop	2	
2	Computer Desktop	10	
3	Color Laser Printer A3	1	
4	Laser Printer	4	
5	UPS	10	
6	Camera Digital	3	

Figure 5.3: IT request from municipalities.

5.3 Security and Practical Considerations in Growing IT Capacity

There are several security concerns that arise specifically in this context, but are also considerations that are taken seriously in any enterprise IT department.

- IT is pilfer-able. IT equipment is valuable and portable. Properly accounting for the physical components of IT infrastructure is a serious consideration in any enterprise and the situation in Basra would make this consideration even more important. Any proper IT implementation plan should consider the physical security of the building in which these systems would be installed, along with an IT accountability program. Prominent permanent labeling would also serve as a minor deterrent against theft.

- Networks are vulnerable. The information processed in an IT infrastructure would almost certainly be vulnerable to exploitation or malicious damage by a trained hostile actor. There is probably no one in any of these organizations who could act as a full time network administrator who would have the training to properly secure the network against even simple threats like internet borne viruses.

- Digital cameras, hand held GPS devices, and cell phones are all useful to actors hostile to coalition forces. Were we to provide such devices to the public sector

utilities we would have to assume that some number of them might be used against us. This threat is mitigated by the ready availability of such devices (at considerable expense) to hostile elements.

- High resolution digital raster images of the province provide a similar dual use threat. However, the ready availability of sub meter digital image (for example from Google Earth) mitigates the risk of providing this data in a format useful for GIS systems.

5.4 Open Source Solutions and Creative Approaches

As part of our assessment and training, and because of the limited IT equipment and software available to us to execute this program, we made heavy use of open source software and modest computer hardware. We wanted to offer the students the ability to develop project planning documents in Arabic and introduce them to project planning software in general. Since we did not have access to, for example, MS Project and Primavera, and since we did not have Arabic installations of windows we downloaded a general purpose desktop workstation version of the Linux operating system. We chose the 7.04 KUbuntu release because it has the same ease of installation as Ubuntu, but uses the K Desktop Environment (KDE) under which a much larger number of scientific and management programs run. The distribution includes a full installation of the OpenOffice suite version 2.2, which is a freely distributed productivity suite similar to and compatible with the files generated by Microsoft Office. There are several ongoing initiatives for translating the operating system and application software into Arabic, and both KUbuntu and OpenOffice can be easily switched between English and Arabic. We were able to obtain dual English-Arabic keyboards for use on these machines. The computers were unused GRS machines with very modest specifications, one had a 2.8Ghz P4 and 512M RAM, the other had a 3.4 Ghz P4 and 1024M RAM. Each had a 15 inch LCD display. In addition to the office suite we installed TaskJuggler which is a freely distributed project management system that uses a plain text document in a simple scripting language to generate project schedules and reports. Finally, we used freely distributed open source GIS solutions to demonstrate the concepts behind using GIS

in initial project scoping and proposal documentation. We installed a basic OpenMap application for demonstration purposes. However, because much of the recent formal computer training that has been provided to the Iraqis working in these departments has been provided (under contract) by Mott MacDonald, Fluor, and RTI specifically targeting GIS and CAD skills, the users who attended our briefings were already intimate with the use of commercial GIS and CAD software. As an example, Figure 5.4shows a GIS product developed by the water directorate describing a ring main water line in Basra city. Note that this product shows the limited geo referenced raster background available to water directorate outside Basra city (upper left and lower right gaps in coverage). The Google translation page was a valuable

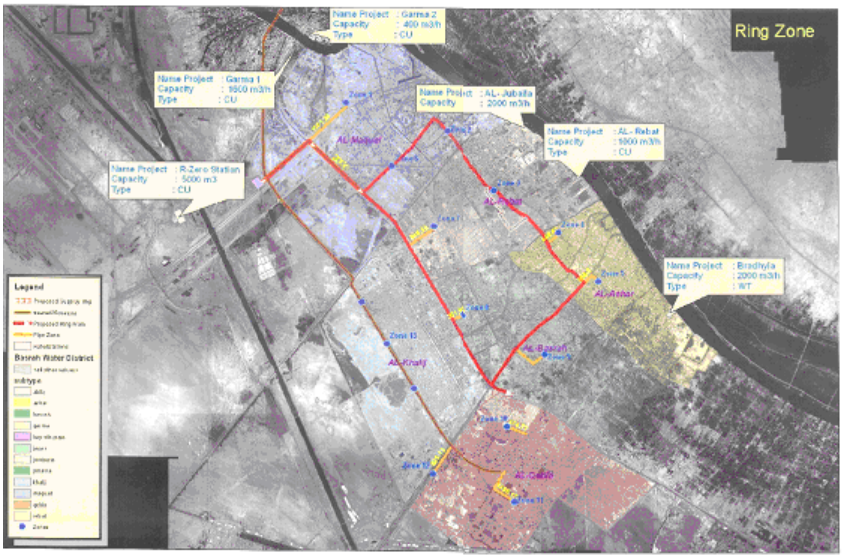


Figure 5.4: GIS product developed by the water sector.

resource and augmented our generally excellent translators.

We also provided the software on CD-ROM. Since the software is open source and feely distributed there were no license considerations. The expense of providing this as a part of the training program was less than $1 US, and the fact that we were willing to make the effort to provide the software was valuable in establishing a mentoring relationship.

5.5 Recommendations

In spite of the challenges outlined above, IT is one area in which a small amount of funding, accompanied by appropriate mentoring can likely enhance the overall performance of these organizations. The IT programs of the water, municipalities, and sewer directorates could be directly, immediately, and positively impacted by a small number of focused Quick Impact Funding initiatives described here:

Digital Cameras Each directorate could be provided with 2 digital cameras at very low cost. An example camera would be the Sony DSC 650, a 7.2 MPixel Digital Camera that uses AA batteries and is available at a US street price for less than $150 with an included 1GB Memory Stick. The cameras are small and unobtrusive which is a serious security consideration for teams conducting assessments. The entire project could be purchased on an impact credit card from Amazon.com for about $900.

Handheld GPS units Similarly a Garmin eTrax Legend handheld GPS can be purchased for $95 from Amazon.com. These devices also use inexpensive AA batteries. They are not total station survey equipment (which might be an appropriate project at some point in the future), but they have all the capability needed to permit in-house assessment and survey by the relatively un-trained teams who would be using them. Like the digital cameras they are small and unobtrusive to use. Providing two units to each IT department would cost about $600. In contrast a single inexpensive L1 total survey instrument, like a Trimble R3, costs $7500 US for the instrument alone.

Network connectivity Since the IT departments do not have trained network administrators, any attempt to enhance their network capability in the near term should emphasize simple solutions. A very appropriate analogy is the typical home network in the United States. The primary long range network infrastructure in the directorates is the internet. Locally, this connectivity can be expanded to several on site computers by very inexpensive unmanaged network hardware. A D-Link DES-1024D 24-Port 10/100 Switch can be purchased from Amazon.com for less than $80 US. 1000 feet of Category 5 cable

can be purchased for less than $120. A crimping tool can be purchase for less than $30. The tools, materials, and training to implement an unmanaged local network installation would cost less than $300 per installation site and 2 to 4 hours of contact with anyone who has installed a home network. Management of this type of network would require no special network administration skill.

General Purpose Computers Providing additional computer hardware under this program is a more challenging project, but the provision of computer hardware must be accompanied by modest training and mentoring in enterprise IT management. It is vital to tailor this training to the very modest capabilities of the organizations, rather than seek to implement the kind of corporate IT program found in even a small municipality or medium business in the developed world. Rather than using cutting edge hardware and expensive, complex licensed software, general purpose IT needs could be met by very modest computers running open source software. IT solutions provided by contractors in the region are extremely expensive. To the maximum extent possible this effort should circumvent using these types of contracts. As part of the implementation plan, hardware should be provided in stages and incorporate basic computer literacy training to lower level managers and first line supervisors. Printers and supplies should be a part of the plan and should be integrated in to budgeting for the sustainment of these systems.

GIS and CAD computers Since the IT departments of the D.G.s have mature specific skills in this area, progress can be made in capacity building for planning and operations by providing the tools that enable the use of this skill set. This is by far the most expensive undertaking in building IT capacity. A single seat license for ESRI ArcGIS (`http://www.esri.com/`) ArcEditor (version 9.2) alone costs $2500 US. There may be a way to negotiate for a better price on several individual seat licenses. The software requires higher end workstations. The total per seat cost of providing this capability would be about $6000. A rough estimate of the total cost of meeting this need is $100,000 US, which includes large format printers. As in the other areas a crit-

ical component of meeting this need should be mentoring on the integration and continued training plan. The IT departments should identify the means by which they will train more employees on the use of the software and budget to maintain the capability over a considerable time horizon (perhaps 5 years).

These recommendations should be translated into specific requests under the Quick Impact Funding Provision of the ERF funding for FY 2008.

The overall recommendations of this chapter are that IT is an area in which small amounts of funding coupled with aggressive engagement and mentoring can have a significant impact on the enterprise culture in terms of attitudes toward and faith in careful planning, detailed proposals, and disciplined implementation.

CHAPTER 6
Building Capacity for Educating Public Sector Servants

As we worked with the Basrah utility sectors an obvious dilemma that needed to be addressed was how to fulfill the continuing capacity development needs for the sectors over time. To address this we worked with the PRT to develop a workshop that would demonstrate the value of continuing education to the development and effectiveness of the utility sector leaders and staffs in planning for and managing their infrastructure over time. The workshop also sought to improve the capacity of the provincial leaders to govern their critical utility sectors. We also worked to build a capacity within Basrah University that can fulfill the continuing education and developmental needs of their public sector servants. On reflection after the workshop one of the benefits of this forum was the teamwork that developed between the utility sector staffs, provincial council members, governor's office representatives and the Basrah University faculty members.

6.1 Regional Mentoring

The Basrah Provincial Reconstruction Team has organized and led several workshops outside of Iraq to develop the governance capacities of Provincial Council and Governor's Office representatives. In conjunction with Gulf Region South (GRS) and the Department of Systems Engineering (DSE) at West Point, the PRT is taking this effort to a new level by partnering with the Dubai School of Government (DSG) to help deliver these workshops. This partnership has several advantages. First it puts a regional university at the forefront of this educational effort getting them actively engaged in supporting the development of Iraq. Second it reduces the "western" lead on governmental development in Basrah to some extent. Third it provides a conduit for establishing a mentoring relationship between successful utility sector agencies in a neighboring country with the utility sector organizations in Basrah. The Dubai School of Government also will become a mentor of Basrah University for developing their own capacity to educate Basrah public sector servants

in the future. The Dubai School of Government partners with the Kennedy School of Government at Harvard University so they have access to the leading concepts in public sector administration in the world. This form of regional engagement has promise to expand into other areas.

6.2 A Workshop for Educating Basra's Public Sector Servants

The DSG, PRT, GRS and DSE collaborated in delivering a pilot workshop for public sector management to selected Basrah Provincial leaders and senior faculty from Basrah University in Dubai from 30 August - 6 September 2007. MAJ Charles Milroy from the PRT was the workhorse for pulling together all the pieces to make this effort work. Andrew Doust, the Regional Manager of Middle East and North Africa Operations for the Coffey International Development Corporation and a PRT member, was also instrumental in putting together the innovative program for this workshop. Dr. Khaled El Gohary, the Manager of Executive Education for the DSG, was superb in leading and coordinating much of the curriculum taught in the workshop. The DSG also graciously hosted and supported the workshop in their beautiful educational facilities.

We first developed the following desired outcomes we hoped participants would leave the workshop with in order to provide focus for developing the program:

- To provide participants:
    1. An understanding of the appropriate roles and responsibilities of infrastructure managers at the ministry, provincial council and infrastructure sector level.
    2. An overview of the organizational management best practices used in the public sectors of water, electricity, sanitation and municipalities.
    3. An understanding of the appropriate roles and responsibilities of a program/project manager.
    4. An overview of project management techniques and practices to include the role of the customer.

- To enhance the capability of the Basrah University faculty to provide education in the areas of public sector and program/project management. This will help them develop their vital and continuing role in building the capacity of the Basrah government to manage its infrastructure.

The workshop provided education and training in public sector program and project management concepts. Gifted speakers from both the DSG and key governmental organizations of Dubai provided presentations on their programs for excellence in government. The workshop included presentations on the best practices used in the management of the utility sector programs in Dubai. The DSE team presented a session on project management to include hands-on application work using the Microsoft Project software. The PRT provided copies of Microsoft Project to the participants. They also presented their recommendations for enhancing the organizational management processes for the Basrah utility sectors. The full agenda for the workshop is presented in Appendix C of this report.

To provide context, the following table provides the names and job titles of the Iraqi participants from Basrah Province:

Table 6.1: Dubai workshop participants.

Organization/Sector	Full Name (English)*	Job Title (English)
A. PC/PRDC	1. Ghali Najim Mater 2. Jalal T Abdulsaheb 3. Ghzi Smari Jaffar 4. Abdul Zahra Sameer Abbas 5. Hamed Nasser Abood	Chairman Basrah PRDC** FP*** Governance FP*** Electricity FP*** Municipalities and Sanitation FP*** Water
B. Governor's Office	1. Waleed Khalid Khudhair 2. Mohammed Halo Aubayd	Governor's Technical Adviser Governor's Office
C. Electricity	1. Adnan T Ibrahim 2. Sabah Abdul Wahad Abdulreda 3. Yousif Abdul- Zahra Yousif	General Manager – Transmission General Manager – Distribution General Manager – Generation
D. Municipalities	1. Ismaail-Gh-Aowda 2. Safa J Karim 3. Marthadha H Ali Salih	Chief Engineer Municipalities GIS Engineer Planning Engineer
E. Sanitation	1. Qassim M Athman 2. Ahmed A Mohammed 3. Susan T Hassan	Director General – Sanitation Planning Engineer GIS Engineer
F. Water	1. Abdul Munsem Khaiwn Lazem 2. Sattar J Jadoa Al Kanan 3. Wisam Raisan Zaboon	General Manager – Water Senior Engineer Systems Analyses Engineer
G. Basra University	1. Anis A Mohamad Ali 2. Saleh E Najim 3. Nebeel J Abdalrudha 4. Abdul Ridha F Bedrewi Al Khamas	Prof of Civil & Structural Engr. Prof & Head, Dept Civil Engr. Assistant Lecturer – Mgmt. Assistant Professor – Mgmt.
E. Basra PRT	1. Mukhallad J Mohammid	Locally Employed Civilian/Programme Officer

** PRDC – Provincial Reconstruction Development Committee *** FP – Sector Focal Point

Since one of the desired outcomes was for participants to have "an understanding of the appropriate roles and responsibilities of infrastructure managers at the ministry, provincial council and infrastructure sector level", much of the discussion at the workshop centered around determining the proper decision authorities, criteria and controls for selecting and prioritizing programs and projects in the public sector. Andrew Doust and Dr. Khaled facilitated the discussions at the program level. Colonel Trainor facilitated the discussion on determining project selection criteria and methods for prioritization. An example 'take-away' from the workshop given to the participants and shown in Table 6.2 was a 'project proposal and justification form' developed by Andrew Doust with input from Colonel Trainor.

Table 6.2: Project proposal and justification form.

Project Proposal and Justification Form	
Sector:	List the sector this project is for.
Proposal No:	List the project number for this proposal
Project Title:	Provide a short title for the project
Project Scope Statement:	Provide a brief description of the project scope
Project Location:	Provide the location in GPS coordinates if possible and attach a one-page sketch of the project
Provincial Objectives Supported:	List the Provincial Development Strategy objectives that this project supports
Sector Criteria Met:	List the primary selection criteria for this sector and demonstrate how this project meets the criteria.
Project Life Span:	Detail the expected life of this project in years
Priority for the Sector:	Categorize the project as Critical, High or Medium priority for the sector
Other Sectors Impacted:	List the other sectors affected by the project and briefly describe the coordination that has been performed with each of these sectors
Estimated Project Expenditure:	List the estimated cost to build this project
Estimated Annual Operations and Maintenance Cost:	Provide the estimated cost to operate and maintain this project each year over its life span. (NOTE: This amount must be requested by the sector in its annual operations and maintenance budget request)
Operational Management:	List the organization that will take over responsibility for the project after it is constructed
Capacity Building:	List the plan for training needed by the management authority to operate the project after construction is completed
Consultation	List the names of the people and organizations (eg. Provincial Council Committees, Governors Office, District Council, other directorates) who have been consulted in relation to this project and whether they support this project proposal.
Security:	Describe if the local police have been consulted to provide site security.
Partner/Donor Funding:	Do you expect any donor funding to support this project? If so, list the donor and point of contact.
Submitted	Date: Name:
Outcome	Detail whether the project is approved. If the project is not approved then reasons should be provided by the decision making body.

Use this form to compare projects and to help determine which project best meets the selection criteria.

Table 6.3: Project selection criteria.

Sector or provincial selection criteria	Project 1	Project 2	Project 3	Project 4	Project 5	Project 6
Criteria 1						
Criteria 2						
Criteria 3						
Criteria 4						
Criteria 5						
Criteria 6						
Criteria 7						
Criteria 8						
Criteria 9						
Score						

The intent for this simple management tool was to enable the sectors and Governor's office to prioritize the many competing projects and program alternatives with which they are faced.

The workshop participants were also provided an excellent summary document, written by Andrew Doust, that detailed the key issues discussed and the action plans they agreed to follow in improving their governance abilities for public sector utilities. This document is provided in Appendix D.

6.3 A Center for Public Sector Advancement at Basrah University

Basrah University maintains the following university-level Centers:

- The Center for Marine Science

- Center for Iranian Studies
- Center for Arab Gulf Studies
- Polymer Research Center
- Palm Research Center
- Center for the Study of Basra
- The Center for Educational Counseling
- Computer Center

The College of Engineering does not currently offer continuing education courses in public sector or project management. The College of Administration and Economics, which contains the Management Department, does offer some short courses but we could not yet determine what these courses are.

During this workshop we discovered that Dr. Anis from the College of Engineering was sponsoring a small executive education-type program to help public sector servants. We proposed that Basrah University create a Center that is focused on Public Sector advancement, i.e. capacity development of governmental leaders and utility services organizations. This would likely be a joint effort between the College of Engineering and the College of Administration and Economics. We see them providing three levels of programs:

1. Education programs leading to degrees in public sector administration / management and derivatives of these programs like engineering management.
2. Continuing education programs in public sector management, utility services management and more technical programs like program / project management, geographic information systems (GIS) applications, etc.
3. Applied research to support the public sector. For example, market analysis of the public, economic trend analysis and projects to support the utility sectors.

This Center could be funded through reimbursable work on selected issues for the public sector agencies and utility organizations.

As a start towards fulfilling this role, the Basrah University faculty met with the DSG leaders and discussed opportunities for faculty education and research outside of Basrah. The DSG also talked about assisting Basrah with curriculum development for public administration courses. West Point may host Basrah University faculty in the future for short courses on technical project management subjects.

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Distribution List

Name/Agency	Address	Copies
Author(s)	ORCEN West Point, NY 10996	2
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Gulf Region Division	Commander, GRD ATTN: XXXX APO AE XXXXX	2
Dean, USMA	Office of the Dean Building 600 West Point, NY 10996	1
Defense Technical Information Center (DTIC)	ATTN: DTIC-O Defense Technical Information Center 8725 John J. Kingman Rd, Suite 0944 Fort Belvoir, VA 22060-6218	1
Professor and Head, Department of Systems Engineering	Department of Systems Engineering Mahan Hall West Point, NY 10996	1
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USMA Library	USMA Library Bldg 757 West Point, NY 10996	1

Appendix A: Points of Contact

The following points of contact were involved in the study. The point of contact information is incomplete, and the English spellings of Iraqi names are only approximate. This is a common challenge when operating in this type of environment.

Name	Agency	Title	Phone	email
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Sabah	BPD	Eng		

Appendix B: Presentation to Gulf Region Division

This appendix contains the slide presentation given to the Gulf Region Division commander and staff at Baghdad in July of 2007. COL Trainor, LTC McDonald, and LTC Henderson made this presentation at the end of the study group visit to Basra.

Building Capacity in Utility Sectors
Basrah, Iraq

Gulf Region South

and the

Department of Systems Engineering

United States Military Academy

US Army Corps of Engineers

Purpose

To provide GRD with an overview of the capacity development progress made in the Basrah utility sectors through the combined efforts of GRS, the Basrah PRT and the Systems Engineering Department, United States Military Academy.

US Army Corps of Engineers

Agenda

- **PRT Overview**
- **Basra Public Works Initiative (BPWI) Overview**
  - **How we got here**
- **Overview of USMA Efforts**
- **Training for Utility Sector Leaders**
- **Building Organizational Capacity in the Utility Sectors**
- **Building Information Technology Capacity**
- **Building Capacity for Educating Public Sector Servants**
- **General Observations**
- **The Way Ahead**
- **Conclusion**

US Army Corps of Engineers

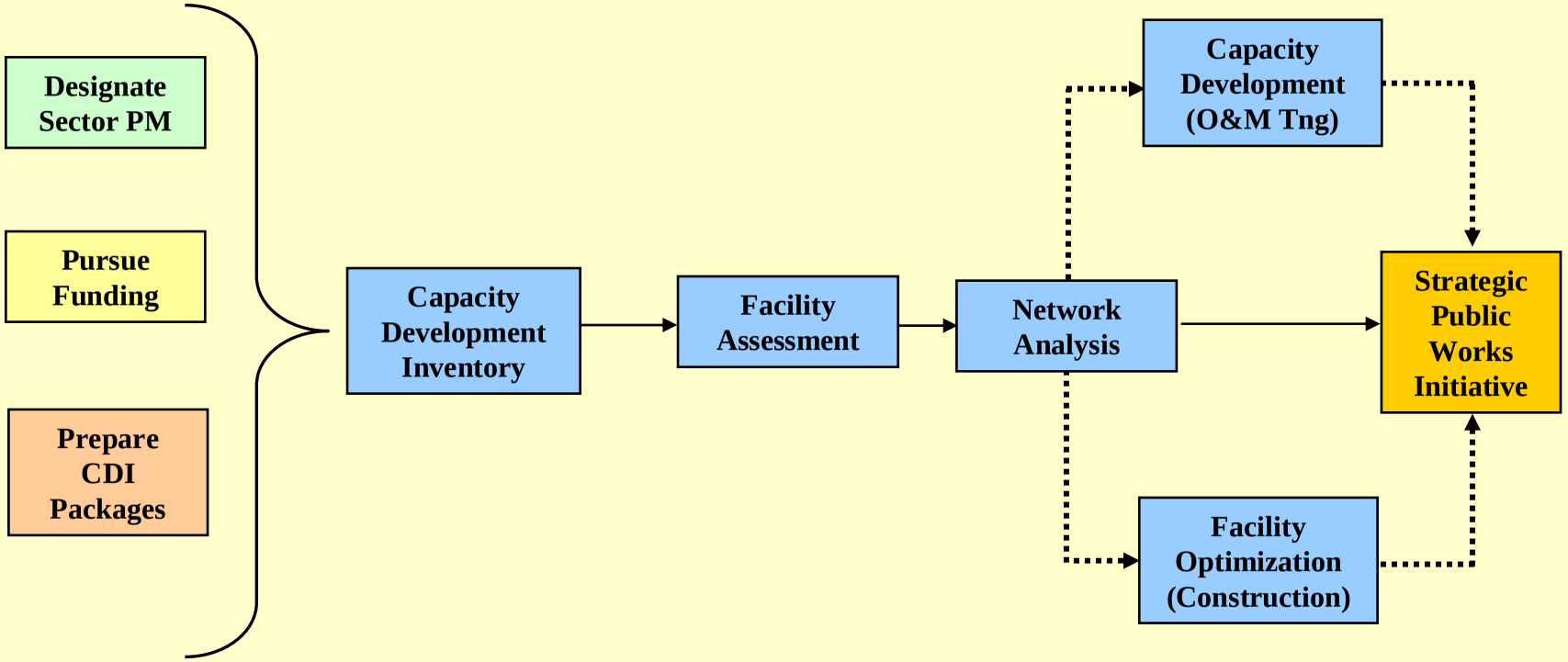
BPWI Development

- **Identified Shortcomings in the Approach**
  - **Lack of “City Engineer" Approach**
  - **Political vs Technical**
  - **Complex Funding and Management**
  - **DGs and Staff Lack Experience**
  - **No O&M Concept**
  - **University Connection**
- **Sell Concept to DG’s and PRT**
- **Joint Briefing to PRDC led by Water**

US Army Corps of Engineers

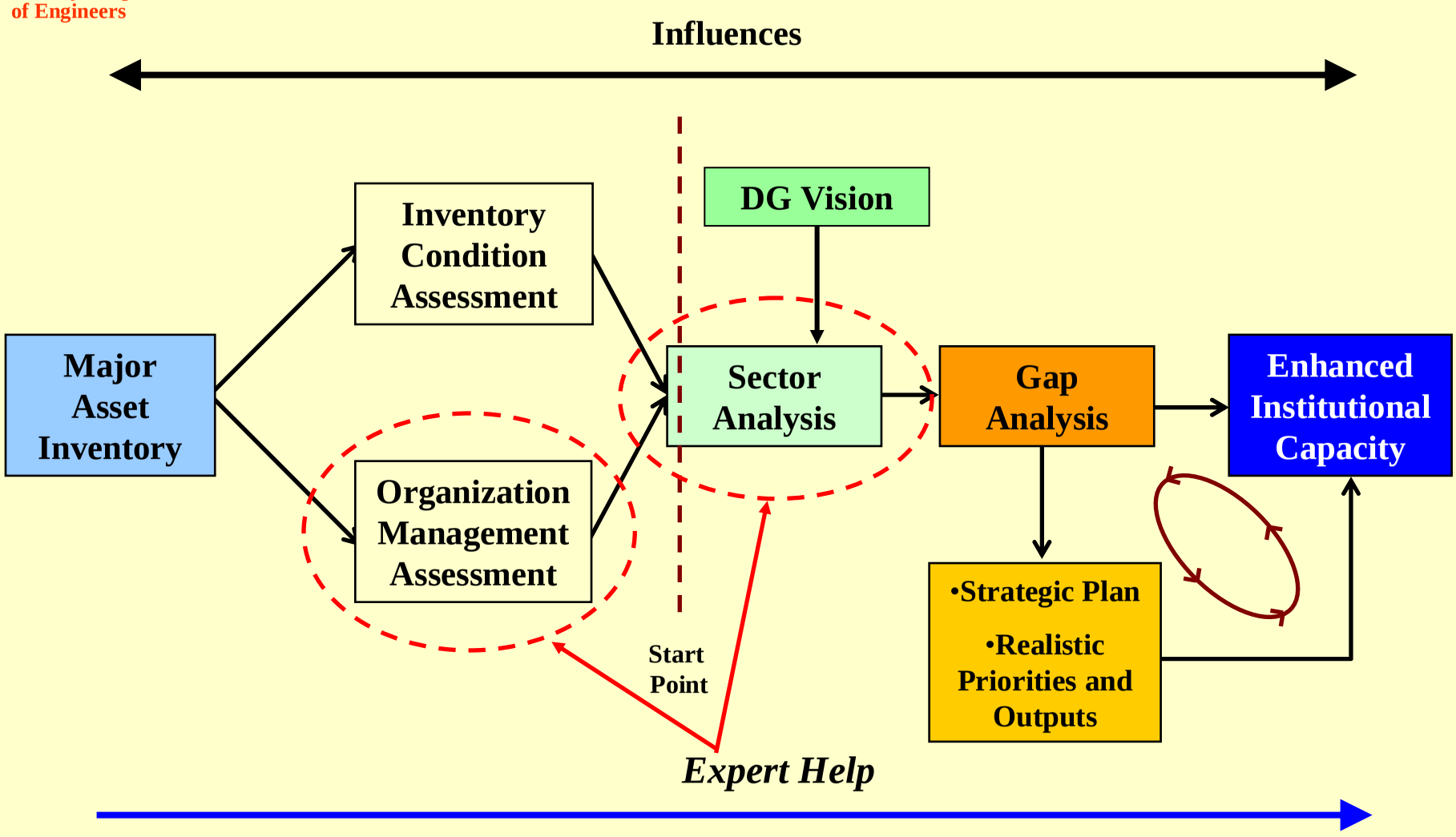
GRS Capacity Development Initiative

CDI Flow Process



US Army Corps of Engineers

Basrah Public Works Initiative



US Army Corps of Engineers

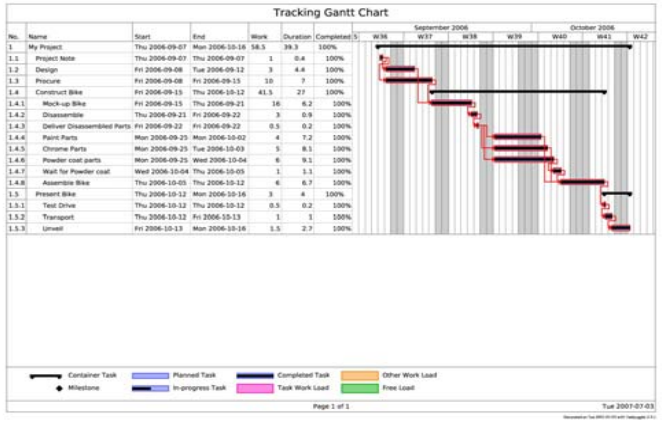
Overview of USMA Efforts

- **Initial Research and Interviews:**
  - **Many good assessments and data available**
  - **Talked to Provincial Council and Some Director Generals (DGs)**
- **Sector Staff Capacity Development:**
  - **Training in Project Planning Skills with Municipalities, Sewerage, Electricity and Water Sectors**
- **Organizational Capacity Development:**
  - **Developed a Management Competencies Paradigm**
  - **Identified Practical IT Needs**
- **Initiative for Continued Capacity Development using Regional and Local Universities**

US Army Corps of Engineers

Training for Utility Sector Leaders

- **Intent was to provide basic project planning and management training within the context of helping the sectors develop project proposals for ESF 2007.**
- **Concepts covered:**
  - **Project Scope**
  - **Project Overview Sketch using GIS tools**
  - **Simple Methods for Uncertainty**
  - **IT Planning**
  - **Initial Project Scheduling**



Used a Project Management free-ware called *Task Juggler* in training

2007-07-03 file:///home/ubuntu/Desktop/Taskjuggler files/Accounting.html

P&L for the Project

The table shows the profit and loss analysis as well as the cashflow situation of the Accounting Software Project.

No.	Name	Scenario	Total USD	2006 Sep	Oct	Nov	Dec
1.	Costs	Plan	12,708	9,153	3,555	0	0
		Delayed	12,708	9,153	3,555	0	0
	Total Costs	**Plan**	**12,708**	**9,153**	**12,708**	**12,708**	**12,708**
		Delayed	**12,708**	**9,153**	**12,708**	**12,708**	**12,708**
2.	Payments	Plan	0	0	0	0	0
		Delayed	0	0	0	0	0
	Total Revenues	**Plan**	**0**	**0**	**0**	**0**	**0**
		Delayed	**0**	**0**	**0**	**0**	**0**
	Total	**Plan**	**(12,708)**	**(9,153)**	**(12,708)**	**(12,708)**	**(12,708)**
		Delayed	**(12,708)**	**(9,153)**	**(12,708)**	**(12,708)**	**(12,708)**

Version 1.0 - Created on 2007-07-03 with Taskjuggler v2.3.1

US Army Corps of Engineers

Training for Utility Sector Leaders

Results

- **Municipalities, Sewerage and Electricity Sectors very engaged ~ 200 student hours.**
- **Could not get beyond political interference with Water, but did work IT management issues hard with them.**
- **Engineers hungry for more training.**

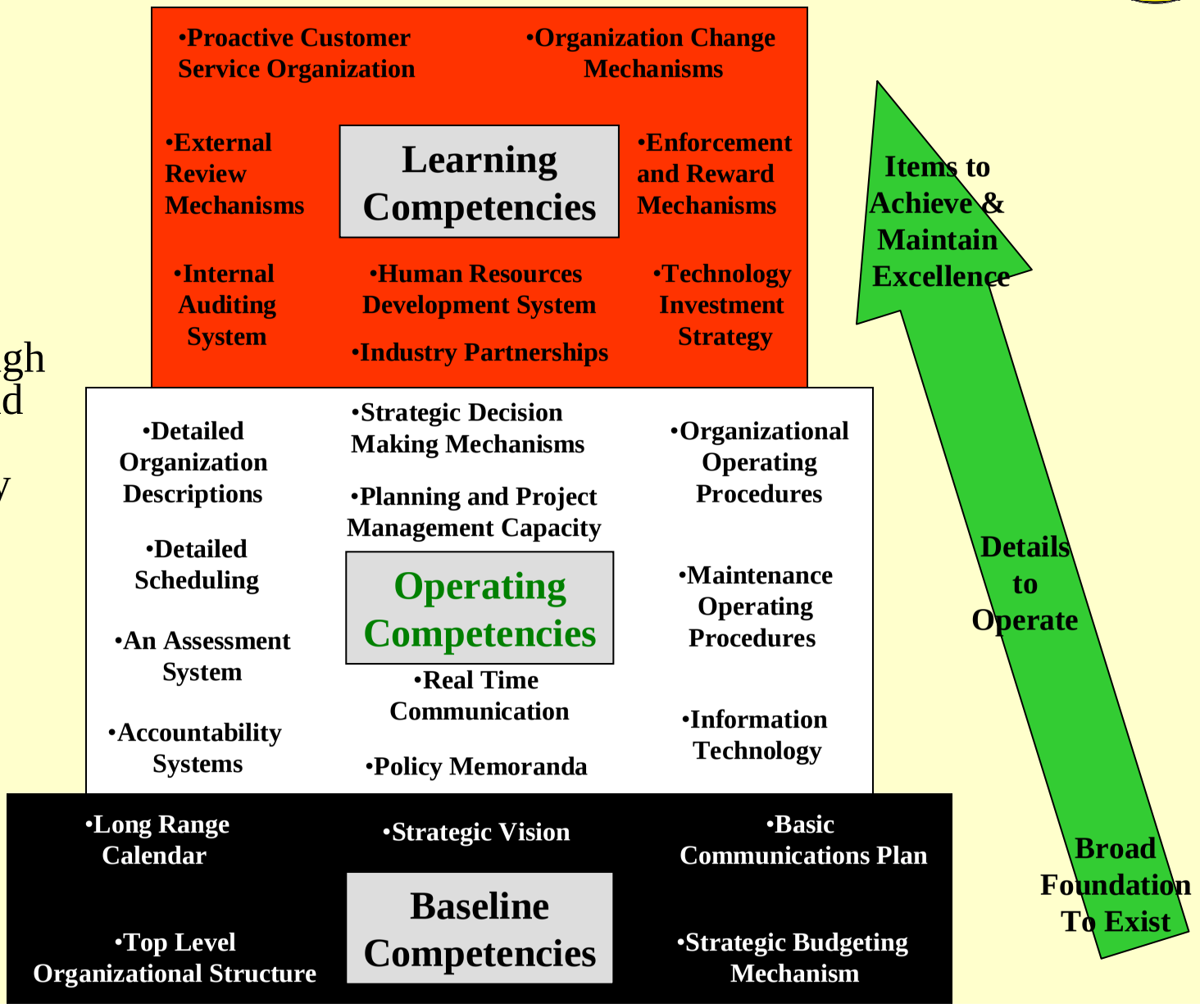
Student Feedback:

- **Liked using their own sector projects as examples for demonstrating how to build an initial project plan.**
- **PM Software Application good but too difficult for them initially.**
- **Want more training.**
- ***"Give out more homework"***

US Army Corps of Engineers

Our 'Paradigm' for Building Organizational Capacity in the Utility Sectors

- Studied the Basra Water Directorate (BWD) through interviews and reading a detailed study for the Japan International Cooperation Agency.



US Army Corps of Engineers

Building Information Technology Capacity

- **Building IT capacity builds organizational capacity beyond hardware, software and user skills.**
  - IT integration requires planning and budgeting skills, prioritization, trade offs, and decision making.
  - IT training is a high level HR function - in house workforce development.
  - Use IT development effort to teach these skills.
- **IT offers the opportunity to make a large impact at low cost.**
  - Let go of our assumptions about what is needed or attainable. Basic computer literacy is rare.
  - Contractors have developed small numbers of skilled users of vendor specific, expensive, single purpose software. “CIOs” at the directorate level are actually GIS architects and Excel super users – they need to grow into planners and enterprise IT managers.
  - Inexpensive digital cameras and handheld GPS systems provide a 75% (+) solution at 2% of the cost of total station survey gear. They are simple to teach people to use and inexpensive to operate.
  - Network integration – think of a US “home network” rather than an enterprise network solution. These organizations need simple networks that can be run without a trained administrator. Networked printers are important. The internet is their network, gmail is their mail server.
  - Many general purpose inexpensive (lower end) computers add more value in more ways than a few high end single purpose workstations. Consider Open Source solutions (Arabic) to keep costs down.
  - Computers will enable business practices that will still run on paper – printers matter.
- **IT comes with risks.**
  - Dual use – GPS, Digital Camera (however these technologies are readily available anyway).
  - Pilfer-able – laptops are especially vulnerable, weigh their advantages over desktop systems.
  - Network vulnerability – even against simple threats like viruses. User training and IT policy can mitigate this risk – IT administration is a capacity building opportunity.
  - Power protection is vital – UPS systems are a key component (and cost driver) of IT systems.
  - Supplies (Paper and Ink) require planning and budgeting. Keep life cycle costs down.

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Building Capacity for Educating Public Sector Servants

Pilot Public Sector Administration and Management Workshop in Dubai from 30 Aug – 6 Sept 2007. (NOTE: Dubai School of Government is sensitive to public release of their participation for now)

General Concept:

- Execute a workshop to educate and train public sector servants for Basrah using the Dubai School of Government as the lead to **foster regional engagement**. The program will include a 'hands-on' view of best practices used in the management of water, electricity, sanitation and municipalities sectors in Dubai. Senior faculty from **Basrah University** will attend to develop their capacity to lead this effort in the future.

Desired Outcomes:

- **Provide participants**:
  - An understanding of the appropriate roles and responsibilities of infrastructure managers at the ministry, provincial council and infrastructure sector level.
  - An overview of the organizational management best practices used in the public sectors of water, electricity, sanitation and municipalities.
  - An understanding of the appropriate roles and responsibilities of a program/project manager.
  - An overview of project management techniques and practices.
- **Provide Basrah University**:
  - Enhanced capability to provide education in the areas of public sector and program/project management.

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General Observations

- Physical Infrastructure stills need a great deal of work, however the following obstacles/challenges will significantly hamper the growth of functional, non-dependent utility sector organizations:
  - **Lack of Education**:
    - In the Water sector, 6% of the workforce has a Bachelor or higher degree while 43% are illiterate.
  - **Lack of Enforcement or Compliance Mechanisms on Managers and Consumers to Change Behavior**:
    - Little influence from Governor or national Ministry of Municipalities and Public Works on DGs for good management of their sectors.
    - Payment for utility services is not enforced so without a marginal cost to consumers demand is uncurbed.
  - **Political Influence on Sector DGs**:
    - In our dealings with DGs, they take guidance from Provincial Council members so separation of legislative and executive responsibilities is not clear.

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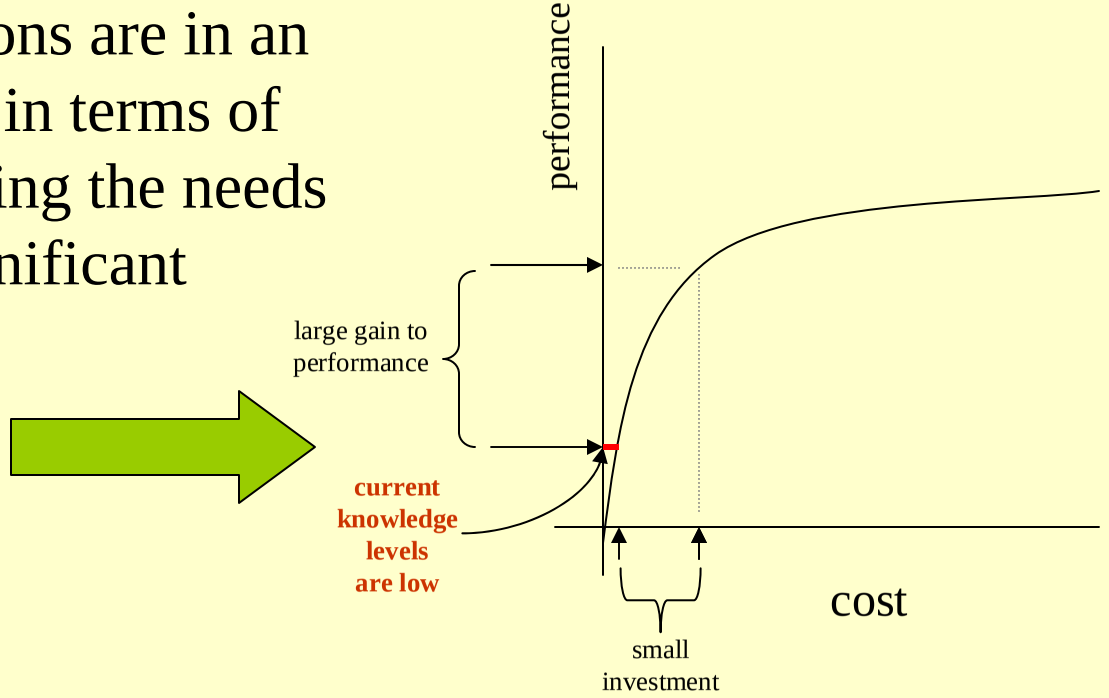
Additional Thoughts…

- Utility Sector organizations are in an early development stage in terms of their growth towards filling the needs of the public without significant international support.
  - Modest investments

  can have a large impact.



- Infrastructure investment needs a larger focus on organizational capacity development. This may require a MiTT team-like approach.

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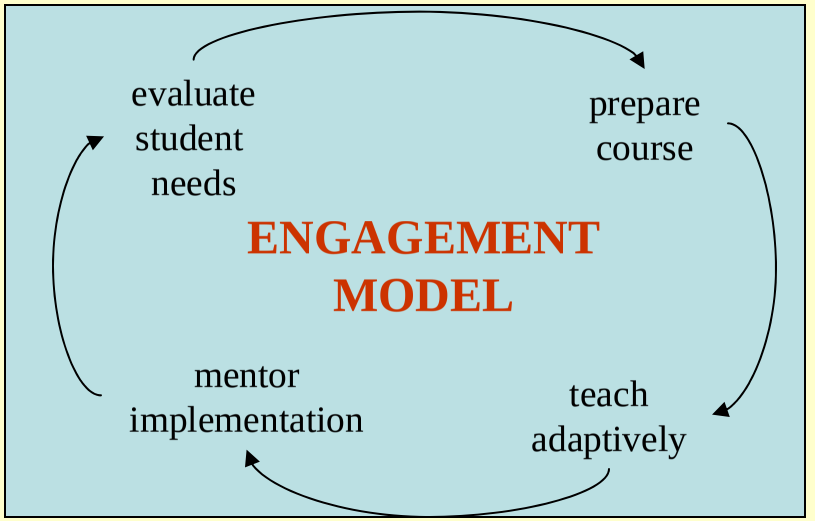
The Way Ahead - *Engagement*

- Need managerial, technical and IT training from groups that build a bond of trust through regular engagement:
  - Focused on sector needs and realistic expectations of what they can sustain.



- Convene organized, regular forums of utility sector DGs to share 'best practices' for organizational management – use the "Paradigm" as a guide.

• Develop Basrah University capacity to educate and support the public sector:

<u>Create a Joint Engineering & Management Center to</u>:

-Provide executive education;
-Technical Support;
-Long term research to support provincial strategic planning and growth.

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Conclusion

- **Momentum**
- **Finally Progress**
- **Seeing the Light**
- **Lost Opportunity?**


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BASRAH, IRAQ
LIVING THE DREAM!"
HENDERSON
TRAINOR

Appendix C: Dubai Seminar Agenda

This appendix contains the agenda for the Basra Public Works Initiative Infrastructure Workshop/Seminar conducted in Dubai, UAE between 30 August and 6 September 2007.

Basra Public Works Initiative

Infrastructure Workshop/Seminar

Dubai

30 August to 6 September 2007

Day-One – Thursday 30th August 2007

Ser	Time	Event	Description	Lead/Faculty
1	0900 - 1130	Set up	Set up reception area for registration of delegates	SNTTA
2	1130 - 1400	Arrival	Meet delegates at Dubai International Airport and transport to Hotel	PRT/SNTTA
3	1400 - 1500	Break	Lunch	
4	1500 - 1600	Registration	Registration (incl collection of passport details issue of folder, welcome letter and per diem) and brief welcome to Park Hyatt	PRT/SNTTA
5	1900 - onwards	Facilitator's meeting/dinner	Location TBC	Charles Milroy

Day-Two – Friday 31st August 2007

Ser	Time	Event	Description	Lead/Faculty
1	0845 - 0900	Assemble	Assemble to meet transport to Dubai School of Government (DSG)	PRT
2	0900 - 0930	Travel	Travel to DSG	PRT
3	0945 - 1000	Welcome Address	Welcome address and "remedial" administration The Workshop/Seminar context, aims and objectives	Charles Milroy
4	1000 - 1030	Keynote Speech	Keynote Speech from Commander Gulf Region District	BG Walsh
5	1030 - 1130	Sector Briefs	DG's from each sector brief (10 mins each) the workshop on the following: 1. Role of organisation 2. Structure of Organisation 3. Key HR Information 4. Key Installation Information 5. Key Challenges 6. DG's vision for the future and outline road plan for achieving it	Charles Milroy
6	1130 - 1230	Governance	Governance – 1. Roles and responsibilities 2. Budget Flowchart	Andrew Doust
7	1230 - 1330	Break	Lunch	
8	1330 - 1430	Presentation	Organisation and IT	USMA
9	1430 1530	Presentation	Setting the scene for production of sector Development Standard Operating Procedures (SOPs)	Tim Trainor & Andrew Doust
10	1530 - 1630	Travel	Travel to Park Hyatt Hotel	PRT

Day-Three – Saturday 1st September 2007

Ser	Time	Event	Description	Lead/Faculty
1	0845 - 0900	Assemble	Assemble to meet transport to Dubai School of Government (DSG)	PRT
2	0900 - 0930	Travel	Travel to DSG	PRT
3	0945 - 1130	Case Study	Government Excellence Program	Shouqi Al Yousuf Vice President-Government Excellence DEWA
4	1130 - 1200		Break	
5	1200 - 1400	Case Study	Dubai Holding Excellence Experience	Khaled Khattab Director- Business Excellence Programs Dubai Holding
6	1400-1500		Lunch	
7	1500-1600	Case Study	Excellence in Jordan & UAE	Abdul Rahim Jallad Excellence Programs Expert Sheikh Khalifa Government Excellence Program
8	1600 - 1630	Travel	Travel to Park Hyatt Hotel	PRT

Day-Four – Sunday 2nd September 2007

Ser	Time	Event	Description	Lead/Faculty
1	0845 - 0900	Assemble	Assemble to meet transport to DSG	PRT
2	0900 - 0930	Travel	Travel to DSG	PRT
3	0945 - 1045		Dubai Economic Model	Ashraf Zeitoon Development Manager Dubai School of Government
4	1045 - 1100		Break	
5	1100 - 1230		New Public Management in Dubai	Yasar Jarrar Executive Dean Dubai School of Government
6	1230 - 1330		Lunch	
7	1330 - 1530	Case Study	Building Excellence in Government	Ahmed Nuseirat Coordinator General- Dubai Government Excellence Programme The Executive Council
8	1530 - 1600	Travel	Travel to Park Hyatt Hotel	PRT

Day-Five – Monday 3rd September 2007

GROUP 1 – DGs Engineers and Academic Staff

Ser	Time	Event	Description	Lead/Faculty
1	0845 - 0900	Assemble	Assemble to meet transport to DSG	USMA/GRS
2	0900 - 0930	Travel	Travel to DSG	USMA/GRS
3	0945 - 1230	Training	Project Management and Technical Training	USMA/GRS
4	1230 - 1300	Break	Lunch	
5	1300 - 1530	Training	Project Management and Technical Training	USMA/GRS
6	1530 - 1600	Travel	Travel to Park Hyatt Hotel	USMA/GRS

GROUP 2 – Governor's Office and Provincial Council Representatives

Ser	Time	Event	Description	Lead/Faculty
1	0800 - 0815	Assemble	Assemble to meet transport to Abu Dhabi	PRT
2	0815 - 1000	Travel	Travel to Abu Dhabi	PRT
3	1000 -1430	Visit	Visit to Abu Dhabi Sewerage Services Company Programme TBC but includes buffet lunch	PRT
4	1430 - 1600	Travel	Travel to Park Hyatt Hotel Dubai	PRT

EVENING - **Representatives of Basra University** Development of a Partnering Plan between Dubai School of Government and Basra University. USMA/ GRS to lead – 1800 – Yassar's "Other Office"

Day-Six – Tuesday 4th September 2007

Ser	Time	Event	Description	Lead/Faculty
1	0845 - 0900	Assemble	Assemble to meet transport to various locations	PRT
2	0900 - 0930	Travel	Travel to DSG	PRT
3	0945 - 1230	Workshop	Workshop discussion "Establishing Excellence in Basra" to include the need for reforms and the development of action plans and to include a. Developing SOP's for Project Prioritisation b. Reach agreement with DG's re improving their processes to support an improved budget submission for FY 2008 (to include O&M details)	PRT
4	TBC	Lunch		PRT
5	TBC	Travel	To Park Hyatt	PRT
6	1600 - 1630	Travel	To Indoor 5-a-side Football venue	PRT
7	1630 - 1730	Activity	**Soccer – PRT Win!!!**	All
8	1730 - 1800	Travel	**Return to Park Hyatt Hotel**	PRT

Day-Seven – Wednesday 5th September 2007

Ser	Time	Event	Description	Lead/Faculty
1	0845 - 0900	Assemble	Assemble to meet transport to various locations	PRT
2	0900 - 0930	Travel	Travel to DSG	PRT
3	0945 - 1200	Workshop	Workshop discussion "Establishing Excellence in Basra" to include the need for reforms and the development of action plans and to include a. Developing SOP's for Project Prioritisation b. Reach agreement with DG's re improving their processes to support an improved budget submission for FY 2008 (to include O&M details) c.	PRT
4	1200 - 1230	Evaluation	Seminar Evaluation	PRT
5	1230 - 1400	Travel & Lunch	To Restaurant To Be Confirmed	Presentations
6	1400 - 1430	Travel	Return to Park Hyatt Hotel	PRT
7	TBC	Free Time and Activity	Skiing for those who want it. Time TBC	

Appendix D: Memo to Delegates of Basra Public Works Conference

This appendix contains the memorandum, written by Mr. Andrew Doust to the delegates of the Basra Public Works Initiative Infrastructure Workshop/Seminar conducted in Dubai, UAE between 30 August and 6 September 2007.

Memo to delegates who attended the Basra Public Works Conference

Dubai – 31st August – 11th September 2007

Dear delegates

Thank you for your participation in the Basrah Public Works Initiative conference held in Dubai last week. It was a very productive workshop. It is important that we follow through on the issues and actions discussed at the workshop.

The purpose of this document is to summarise the main outcomes of the conference.

Please review the document and determine who will be responsible for each of the actions below. The actions below include the establishment of the three committees which were agreed on the last day of the conference.

It is suggested that the delegates meet again in 3 months to report on progress.

If you have any questions or comments please contact Andrew Doust (andrew_doust@coffey.com).

1. The Provincial management process including provincial roles and responsibilities

On the first day of the conference we discussed the roles and responsibilities of the Provincial Council, Governors Office and Technical Directorates. A member of the PRT presented the proposed Provincial Management Process (see Appendix 1a below) and asked delegates to suggest any changes. Some minor changes were suggested and most delegates (apart from delegates from the Governors Office) agreed to adopt the Provincial

Management Process. However, the delegates from the Governors Office suggested an alternative Management Process (see Appendix 1b below) which they distributed for discussion.

Comments from delegates regarding the Provincial Management Cycle

1. Need to define and document the duties of government leaders
2. Need to define the responsibilities of central government, provincial government and local government
3. Need to improve the data and information systems in the province to enable improved decision making
4. The Provincial Council should be responsible for allocating money to each sector and the Director Generals should be responsible for proposing projects within each sector
5. We need a coordination group which involves the Directorates, Governors Office, the Provincial Council and any other industry specialists to discuss project priorities and to provide guidance to decision makers
6. There is no need to send the approved budget to Baghdad. Only projects that involve investment budgets require Baghdad approval
7. Selection and evaluation of contractors is the responsibility of the Governors Office and **not** the Provincial Council. The Provincial Council maybe involved in the selection panel.
8. Need a clear strategic plan and annual budget guidance from the Provincial Council in order for directorates / departments to develop their plans
9. During the construction period, the relevant managers in each directorate should monitor the project. Any variations to contract should be addressed by a project committee which may involve members of the Governors Office and in some cases the Provincial Council.

It is very important to finalise and adopt the Provincial Management Process and clarify the roles of the Provincial Council, Governors Office and Director Generals.

Action

- Form a committee (involving the Provincial Council, Governors Office and representatives from the Director Generals) to discuss the proposed Provincial Management Cycle and the alternative process suggested by the Governors Office. Finalise the process (documented) and submit to the Director Generals, Governors Office and Provincial Council for approval. Committees members and chair:
    - Jalal Abdul Saheb – Provincial Council (chair)
    - Waleed Khalid – Governors Office
    - A representative of Director Generals
    - Another committee member

2. Government Excellence Programme

Six speakers from the Government of Dubai (including DEWA, Dubai Municipalities and Dubai Holdings) presented on the 'Government Excellence' programme in the UAE.

Each speaker explained how the Government Excellence programme has helped improve the quality of government services in Dubai. The programme is based on the European Framework for Quality Management (EFQM) and is designed to help organizations improve their performance in leadership, staff management, resources, processes and systems.

The key message of these presentations was that significant improvements in the quality of services in Basrah can only be achieved by improving the management and administration of the organizations that deliver services. We must invest in leadership, management, staff and systems in the Governors Office, Technical Directorates and the Provincial Council so that each organization can perform at an acceptable standard. The Provincial Administration must be committed to this.

Improving public service delivery in Basrah is a long term process. A presenter from the Dubai School of Government facilitated a session to help delegates develop an action plan to begin the process of improving the management and administration in their departments. Delegates were asked to complete the form 'Towards Excellence in Basrah – Action Plan' (Appendix 2 below) to identify small steps (actions) that they could take in the next 3 months.

Action

- Members of the Governors Office, Director Generals and the Provincial Council are to finalise the action plan and begin implementation. Delegates should also meet with their colleagues to gain support for the action plan. All delegates to report on progress against the plans in three months time.

3. Education and training of managers in the public sector

The Dubai School of Government (DSG) also highlighted the importance of continuous education of managers and executives in the public sector. Staff from the faculty of the Basra University met with the Dubai School of Government to discuss how the DSG could assist Basra University to establish an executive education programme aimed at improving the management and administration skills of managers in the public sector.

DSG offered to support the development of a public sector excellence executive education programme by providing curriculum resources and by training faculty from Basrah to deliver the programme.

Faculty from USMA Department for Systems Engineering also offered to assist Basrah University with project management curriculum and by training of faculty.

Action

- Basrah University faculty to develop a brief plan to provide education and training to public sector managers in Basrah. Include any requirements that the University may have for additional staff or resources that the international community can consider funding in the short term.
- Provincial Council to request Basra University to consider providing education for public sector managers in Basra
- Director Generals to send letter to Basra University outlining their requirements for education of public sector managers.

4. Establishing excellence in Basra

The delegates agreed to work together and to form a committee to progress the concept of excellence in the public sector in Basrah and to build on the outcomes of the conference.

Action

- A committee will be formed to discuss how to determine how to introduce the principles and practices of public sector excellence in Basrah. INSERT NAME OF COMMITTEE MEMBERS AND CHAIR.

5. Project management

Director Generals and technical staff and delegates from the Governors Office were trained by faculty from West Point in project management processes and project prioritization.

This included training in Microsoft Project. All departments were given a copy of Microsoft Project to use for future project planning.

Action

- Microsoft Project to be introduced as a project management tool in the Governors Office, Technical Directorates and the Provincial Council.

6. Project prioritisation criteria

Delegates were trained how to develop evaluation criteria which are used to prioritise projects. It is essential that the Provincial Council develop criteria to allocate funding to each sector and that the Governors Office and Directorates develop criteria to prioritise which projects should be implemented within each sector. Each department developed draft criteria.

Delegates discussed the need for more communication between each department to help streamline project selection and implementation. Delegates agreed to establish coordinating groups for each sector (not decision making group) comprising members of the Governors Office, technical directorates, the Provincial Council and where

appropriate other specialists (from industry, donors or academia) to improve communication in project planning and prioritising.

Delegates were provided with a Project Proposal and Justification Form (Appendix 3 below) which they agreed to use when proposing new projects to be funded.

Action

- Finalise project selection criteria and communicate these throughout the Provincial Council.
- Educate staff in all departments to use the Project Proposal and Justification Form when proposing new projects.
- Establish a committee to implement the concept of project planning coordination groups for each sector. INSERT NAME OF COMMITTEE MEMBERS AND CHAIR

7. Training and development

The importance of ongoing education and training was discussed on the final day. Each department completed a training and development needs assessment (APPENDIX 4 below) which will be collated by the conference organizers and used to influence the type of training support provided by donors and other organisations.

APPENDIX 1A

Provincial Administration Management Process

OUTPUT	ACTIVITY	WHO
3 year Provincial Development Strategy. Objectives established in each sector	Provincial Council develops Provincial Strategy (long term timeframe)	Provincial Council (PC) leads. Supported by input from Governors Office (GO), Technical Directors (TD's), federal ministries and the community
Annual fiscal strategy - budget and instructions from Ministry of Finance (MOF)	MOF / donors allocates annual budget (annual)	Ministry of Finance (MOF) and Ministry of Planning
Budget instruction to Governor's Office.	PC develops and approves budget allocations for each sector and advises Governors Office	Provincial Council leads this through PRDC (PC planning unit) and committees. Supported by TD's and GO.
Budget instruction to TD's. Draft sector budgets and operational plans	Governors Office issues budget guideline to technical directorates who prepare projects / operational plan and budgets for each sector.	Governors Office coordinates. through Planning Unit supported by finance dept. TD's develop plans in consultation with PC sub committees and federal ministries
Draft consolidated budget – Provincial Resource Statement.	Governors Office compiles draft budget and list of projects and sends to PC for approval	Governors Office through PTAO.
Approved budget. Instruction to GO. Instruction to TD's	PC approves budget and advises the GO. GO instructs TD's. Approved budget sent to Baghdad for endorsement.	Provincial Council on recommendation of Provincial Reconstruction Development Committee (PRDC). Ministry of Finance.

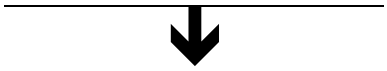
Project specifications and BOQ.	Technical directorates finalise design of projects and prepare bill of quantities	Technical Directorates lead.
Tender documentation. Legal and contractual documentation.	Governors Office coordinates tender process. Tenders awarded.	Governors Office leads through Reconstruction Unit and finance department.
Monthly report by sector and major project.	GO monitors implementation of all projects and reports to PC. Sector Technical Directorates execute individual projects and sign off on completion	Governors Office through Reconstruction Office support by TD's .
Monthly report and annual report	PC monitors execution of budget. GO prepares monthly report.	PC through PRDC (PC planning unit)

دورة الإدارة المحلية

المخرجات	الأعمال	المسؤول

استراتيجية تنمية محلية مدتها (3) سنوات أهداف مرصودة لكل قطاع	المجلس المحلي يضع استراتيجية محلية (إطار زمني طويل الأجل)	المجلس المحلي هو الذي يقود العملية، يدعمه مدخلات من مكاتب المحافظين والمدراء المختصين والوزارات الاتحادية والمجتمعات.
استراتيجية مالية سنوية - الميزانية والإرشادات من وزارة المالية	وزارة المالية والأطراف المانحة تخصص الميزانية السنوية (سنوياً)	وزارة المالية ووزارة التخطيط
إرشادات الميزانية الموجهة الى مكاتب المحافظين	المجلس المحلي يضع ويصادق على مخصصات الميزانية لكل قطاع ويقوم بإبلاغ مكاتب المحافظين	المجلس المحلي يقود هذه العملية من خلال اللجنة المحلية لتنمية اعادة الاعمار (وحدة تخطيط المجلس المحلي) واللجان الفرعية بدعم من المدراء ومكتب المحافظين المختصين
إرشادات الميزانية الموجهة الى المدراء المختصين. ومشروع ميزانيات القطاعات ومشروع خطط التشغيل.	مكتب المحافظين يصدر إرشادات الميزانية الى المدراء المختصين الذين يقومون بإعداد خطة المشروعات والتشغيل والميزانيات اللازمة لكل قطاع	مكتب المحافظين يتولى أمور التنسيق من خلال وحدة التخطيط بدعم من الدائرة المالية. المدراء المختصون يضعون الخطط بالتشاور مع لجان المجلس المحلي الفرعية والوزارات الاتحادية.

مشروع الميزانية الموحدة - اقرارات الموارد المحلية	مكتب المحافظين يجمع مشروع الميزانية وقائمة المشروعات ويرسلها الى المجلس المحلي لاعتمادها	مكتب المحافظين من خلال الجهات المعنية بالمشروعات
الميزانية الموافق عليها، الإرشادات الموجهة الى مكتب المحافظين. الإرشادات الموجهة الى المدراء المختصين	المجلس المحلي يوافق على الميزانية ويبلغ مكتب المحافظين الذي يوجه الإرشادات الى المدراء المختصين الميزانية الموافق عليها ترسل الى بغداد للمصادقة عليها.	المجلس المحلي بناءاً على توصيات اللجنة المحلية لتنمية اعادة الإعمار، وزارة المالية.
مواصفات المشروعات وكشوفات الكميات	المديريات المختصة تنهي تصميم المشروعات وتعد كشوفات الكميات	المديريات المختصة تقود هذه الأعمال.
وثائق العطاءات. والوثائق التعاقدية والقانونية	مكتب المحافظين يقوم بتنسيق اجراءات العطاءات، إرساء العطاءات	مكتب المحافظين يقود الأعمال من خلال وحدة إعادة الإعمار ودائرة المالية
تقرير شهري مقسم الى قطاعات وأهم المشروعات	مكتب المحافظين يراقب تنفيذ جميع المشروعات ويبلغ المجلس المحلي، المديريات المختصة للقطاعات تنفيذ المشروعات التي تخصها وتعلن عن إنجازها.	مكتب المحافظين من خلال مكتب إعادة الإعمار بدعم من المدراء المختصين

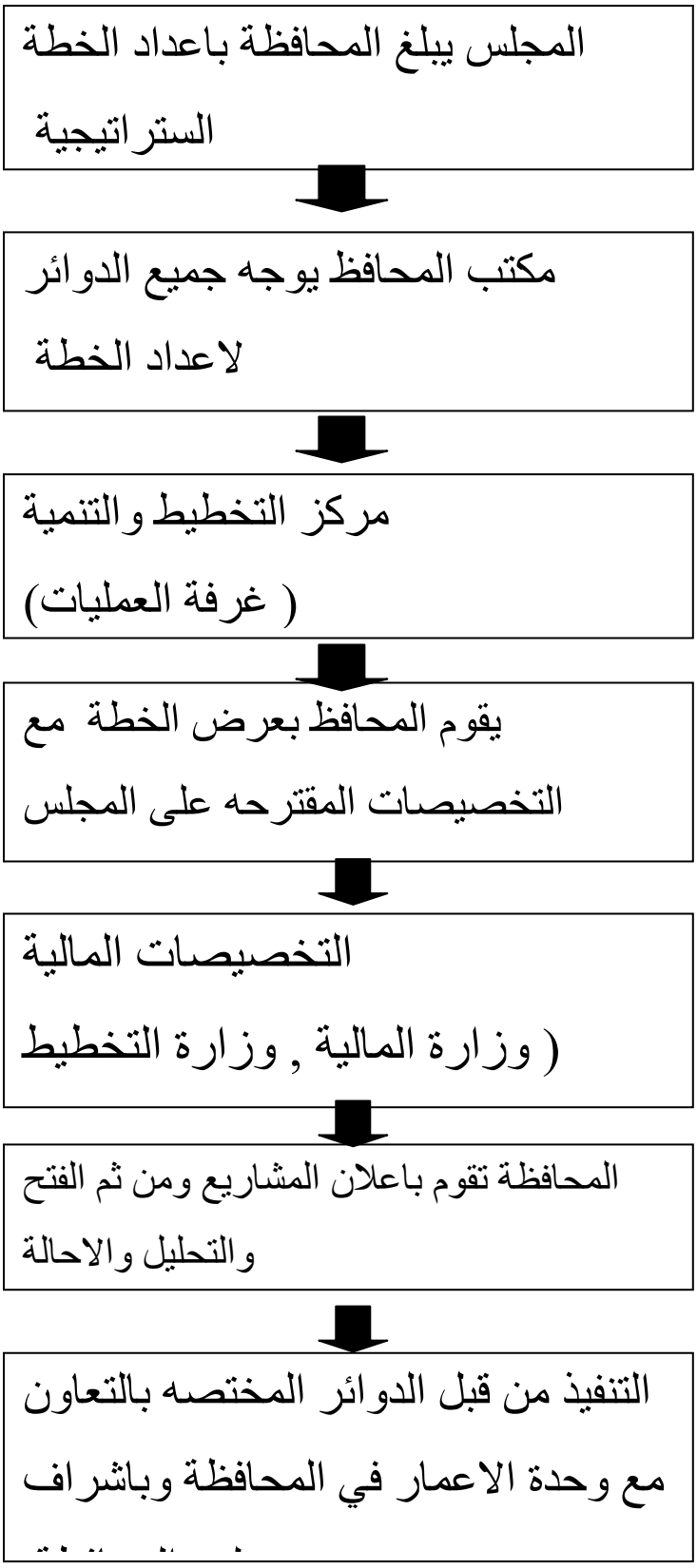


تقرير شهري وتقرير سنوي	المجلس المحلي يراقب تنفيذ الميزانية. مكتب المحافظين يعد تقريراً شهريا	المجلس المحلي من خلال اللجنة المحلية لتنمية إعادة الإعمار (وحدة تخطيط المجلس المحلي).

APPENDIX 1B

Provincial Management Process

Governors Office Alternative for discussion



APPENDIX 2

Towards Excellence in Basrah – Action Plan

Name of Department -

What action can we take in the long term	What action can we take in the next 3 months	What are the problems / issues now	Performance enablers
			Leadership
			People / staff
			Policy and Strategy
			Partnership and resources
			Processes and systems
			Key risks - how we will manage these
			Support for change – who are the key people and how do we gain their support

APPENDIX 3

Basrah Province

Project Proposal and Justification Form

Please complete this form when submitting a project for approval.

Project Proposal and Justification Form	
Sector:	List the sector this project is for.
Proposal No:	List the project number for this proposal
Project Title:	Provide a short title for the project
Project Scope Statement:	Provide a brief description of the project scope
Project Location:	Provide the location in GPS coordinates if possible and attach a one-page sketch of the project
Provincial Objectives Supported:	List the Provincial Development Strategy objectives that this project supports
Sector Criteria Met:	List the primary selection criteria for this sector and demonstrate how this project meets the criteria.

Project Life Span:	Detail the expected life of this project in years
Priority for the Sector:	Categorize the project as Critical, High or Medium priority for the sector
Other Sectors Impacted:	List the other sectors affected by the project and briefly describe the coordination that has been performed with each of these sectors
Estimated Project Expenditure:	List the estimated cost to build this project
Estimated Annual Operations and Maintenance Cost:	Provide the estimated cost to operate and maintain this project each year over its life span. (NOTE: This amount must be requested by the sector in its annual operations and maintenance budget request)
Operational Management:	List the organization that will take over responsibility for the project after it is constructed
Capacity Building:	List the plan for training needed by the management authority to operate the project after construction is completed
Consultation	List the names of the people and organizations (eg. Provincial Council Committees, Governors Office, District Council, other directorates) who have been consulted in relation to this project and whether they support this project proposal.
Security:	Describe if the local police have been consulted to provide site security.

Partner/Donor Funding:	Do you expect any donor funding to support this project? If so, list the donor and point of contact.
Submitted	Date: Name:
Outcome	Detail whether the project is approved. If the project is not approved then reasons should be provided by the decision making body.

Project selection criteria

Use this form to compare projects and to help determine which project best meets the selection criteria.

Sector or provincial selection criteria	Project 1	Project 2	Project 3	Project 4	Project 5	Project 6
Criteria 1						
Criteria 2						
Criteria 3						
Criteria 4						
Criteria 5						
Criteria 6						
Criteria 7						
Criteria 8						
Criteria 9						
Score						

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15-08-2007	Technical Report	15-02-2007 -- 15-09-2007

4. TITLE AND SUBTITLE

Building Capacity in the Public Utility Sectors of Basra, Iraq

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

Colonel Tim Trainor
Lieutenant Colonel Dale L. Henderson

5d. PROJECT NUMBER

DSE-TR-0811

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Operations Research Center of Excellence
Department of Systems Engineering, United States Military Academy
West Point, New York 10996

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